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GEOMETRIC PARAMETERS THAT INFLUENCE FLOODPLAIN FLOW.(U)

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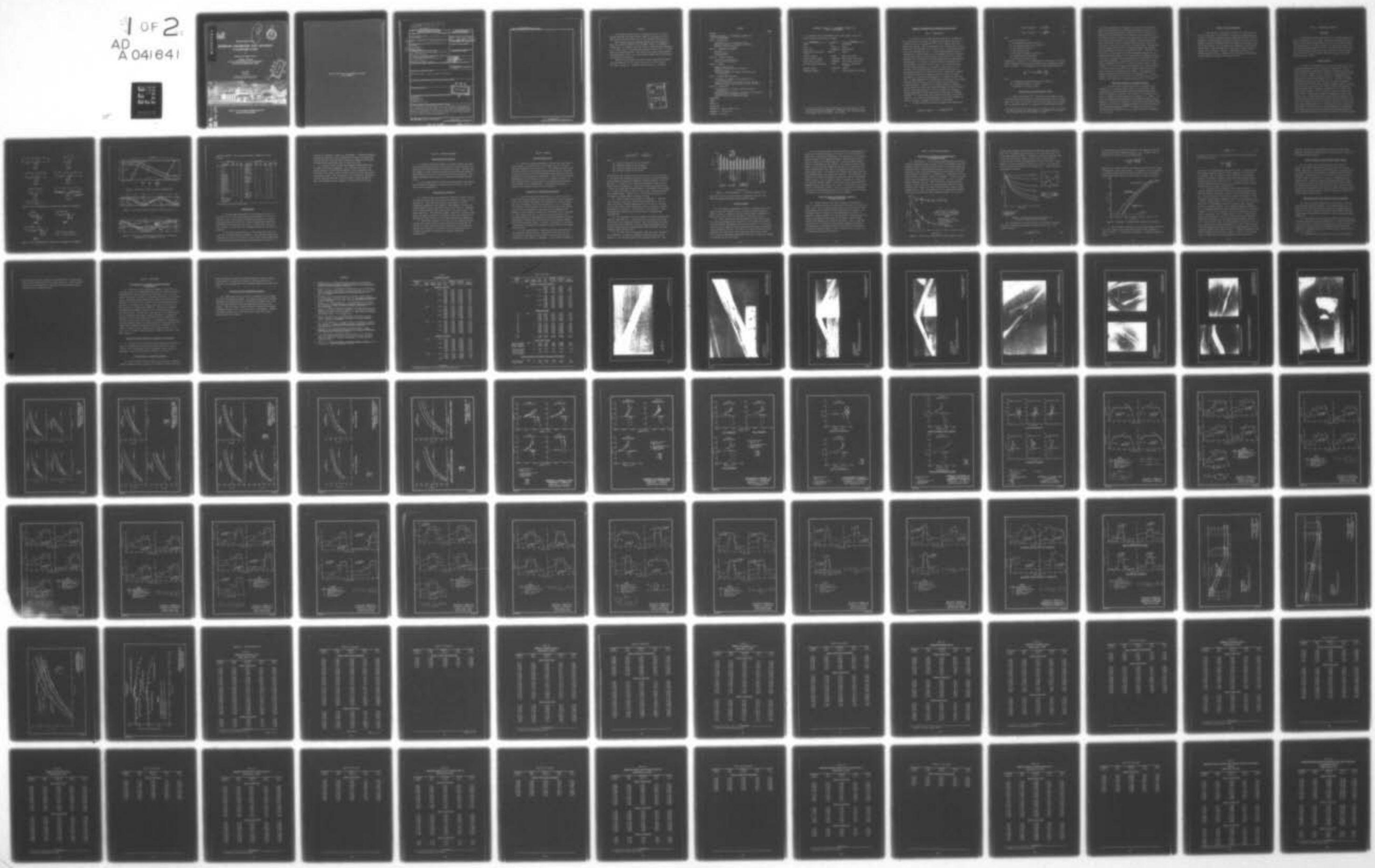

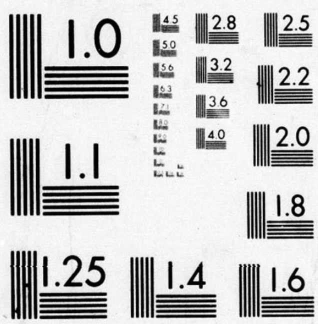

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GEOMETRIC PARAMETERS THAT INFLUENCE FLOODPLAIN FLOW

by

Maurice James, Bobby J. Brown

Hydraulics Laboratory
U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

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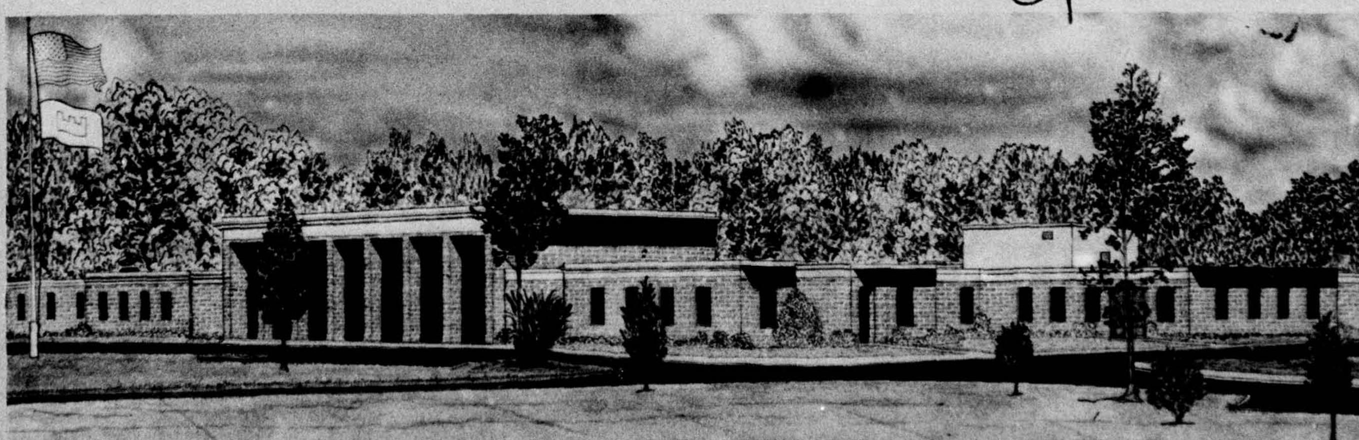

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Laboratory tests were conducted in a tilting flume to study the effects of overbank flow on the resistance coefficient. Testing was accomplished on a straight and meandering main channel for a symmetrical and asymmetrical floodplain of various widths. Results indicated that a correction must be applied to the resistance formula for shallow-flow depths over the overbank, and the correction factors are presented graphically.

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PREFACE

The research described herein was conducted at the U. S. Army Engineer Waterways Experiment Station (WES) with funding by the U. S. Army Engineer District, Kansas City, of the Missouri River Division.

This research study was performed during the period 1974-1976 under the direction of Messrs. H. B. Simmons, Chief of the Hydraulics Laboratory; F. A. Herrmann, Assistant Chief of the Hydraulics Laboratory; E. B. Pickett, Chief of the Hydraulic Analysis Division; and B. J. Brown, Chief of the Analysis Branch. Mr. Maurice James conducted the research and prepared this report. Mr. Martin Hebler operated the test equipment and obtained the basic data.

Directors of WES during the course of this study and the preparation and publication of this report were COL G. H. Hilt, CE, and COL John L. Cannon, CE. Technical Director was Mr. F. R. Brown.

CONTENTS

CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
inches	25.4	millimetres
feet	0.3048	metres
square feet	0.09290304	square metres
pounds (force per square inch	6894.757	pascals
feet per second	0.3048	metres per second
square feet per second	0.09290304	square metres per second
cubic feet per second	0.02831685	cubic metres per second
feet per second per second	0.3048	metres per second per second
degrees (angle)	0.01745329	radians
Fahrenheit degrees	5/9	Celsius degrees or Kelvins*

* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use: $K = (5/9)(F - 32) + 273.15$.

GEOMETRIC PARAMETERS THAT INFLUENCE FLOODPLAIN FLOW

PART I: INTRODUCTION

1. Prediction of the stage-discharge relation for overbank flow in a flooded river or channel that has a wide floodplain has been considered by several investigators,[1,2,3,4] but no standard prediction method has resulted. These investigations have revealed that the basic Manning or Chezy equations do not account for all the significant parameters which influence the flow. If the floodplain-channel system is considered as a single channel (i.e., the hydraulic radius is computed from the total flow cross-sectional area divided by the total wetted perimeter), the flow depth for a given discharge will be significantly overestimated or in the case of a known depth the discharge will be underestimated. This error is due in part to the relatively large increase in wetted perimeter with respect to the increase in cross-sectional area of shallow depths on the floodplain resulting in a significant decrease in the hydraulic radius. Consequently, assuming the roughness coefficient remains constant with stage, the stage-discharge curve will have a discontinuity at a stage just above bankfull. A common method used to overcome this discontinuity in the stage-discharge curve has been to treat the channel and floodplain as separate channels. Furthermore, this method provides a convenient way of taking into account the different roughness coefficients usually found on the wetted perimeters of the main channel and floodplain. However, investigations have shown that an interaction or "momentum transfer"[2,3,4] occurs between the floodplain and channel flow masses; therefore, the resulting stage-discharge curve will underestimate the depth or if depth is assumed, overestimate the discharge.

2. The basic equations used in open-channel flow computations are:

Manning's equation: $$Q = \frac{1.49}{n} AR^{2/3}S^{1/2} \qquad (1)$$

$$\text{Chezy's equation:} \quad Q = CA\sqrt{RS} \tag{2}$$

$$\text{Darcy's equation:} \quad Q = A\sqrt{\frac{8g}{f}\,RS} \tag{3}$$

where

Q = the discharge, cfs*

n = the Manning resistance coefficient

A = the cross-sectional area of flow, ft^2

R = the hydraulic radius, ft

S = the friction slope

C = the Chezy resistance coefficient

g = acceleration due to gravity

f = the Darcy resistance factor

The Manning n and Chezy C are determined by observations of various channel roughness materials and are tabulated for the designer in handbooks. The Darcy f is determined by the Colebrook-White equation[5]

$$\frac{1}{\sqrt{f}} = -2 \log_{10} \left(\frac{k_s}{14.83R} + \frac{2.52}{R_e\sqrt{f}} \right) \tag{4}$$

where

k_s = Nikuradse's equivalent sand-grain roughness, ft

R_e = the Reynolds number or $4QR/A\nu$

ν = kinematic viscosity, ft^2/sec

Characteristics of the Hydraulic Radius

3. Some investigators[3,4,6,7] contend that the hydraulic radius (cross-sectional area divided by the wetted perimeter) does not properly define the effect of the channel cross-sectional shape on the discharge. This is especially apparent in a composite floodplain-channel system.

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* A table of factors for converting U. S. customary units of measurement to metric (SI) units is presented on page 3.

In the basic equations, the assumption is made that the shear stress along the wetted perimeter is uniformly distributed and that each element of the perimeter uniformly influences the flow. Obviously, the perimeter of the floodplain can only influence the floodplain flow. If the composite system is treated as one channel (the total area divided by the total wetted perimeter), the hydraulic radius plotted against stage will have one value at the main channel bank-full stage and it will shift to lower values at the lower overbank stages. The magnitude of shift depends upon the ratio of floodplain width to main-channel width (the greater the ratio, the greater the shift). Therefore, the shift may be of such magnitude to cause an apparent decrease in the computed discharge using one of the basic equations (assuming resistance coefficient is constant with stage and equal on both channel and floodplain wetted perimeter). This condition does not occur in an actual channel-floodplain system.[4,8,9] The common solution offered to this problem is to treat the floodplain and channel as two separate channels in the basic equations; however, this technique neglects the interaction between the floodplain and the channel. The interaction or momentum transfer has been observed to be significant.[2,3,4] Consequently, this method will not account for the total energy loss of the composite system and thus the computed discharge will be excessive.

Meandering Channel in a Straight Floodplain

4. The basic equations given previously are founded on the assumption of a straight prismatic channel. Any additional energy losses due to bends or meandering must be included through empirical means by adjusting some factor of the equations. The accepted procedure is to adjust the resistance factor (the Manning n, Chezy C, or Darcy f) based on certain parameters that define the bend or meander geometry. The amount of adjustment is determined by experimental means. However, for the case of a meandering channel in a straight floodplain the available experimental data[9,10] are limited in scope and do not provide sufficient guidance for those situations that most frequently occur in nature.

Purpose of the Investigation

5. This laboratory investigation consisted of three basic parts. The first objective of the study was to establish the stage-discharge relation for various channel-floodplain configurations and, if possible, formulate a computational procedure from these data to account for the apparent interactive mechanism between the channel and floodplain flow. The second objective was to determine what parameter(s) would describe the increase in flow resistance that occurs when a channel crosses or meanders in a floodplain. Finally, a configuration in which the channel meanders outside or separates from the floodplain and returns was investigated for general flow characteristics.

PART II: EXPERIMENTAL APPARATUS

The Flume

6. The laboratory tests were conducted in a tilting flume, 88 ft long, 5 ft wide, and 1-1/2 ft deep. The flume, constructed with 3/4-in. plastic-coated plywood, was mounted on two 18-in. steel channel beams. The water supply for the flume consisted of a closed loop system that had a maximum pumping capacity of 4 cfs. The flume bottom slope could be adjusted to any position between zero and 0.02. Channel configurations were molded in a sand-cement mixture consisting of nine parts sand and one part cement.

Channel Geometry

7. Two basic configurations were tested in considering the interactive mechanism between the floodplain and channel flow. First, a straight trapezoidal channel with a symmetric floodplain was tested for three different floodplain widths. The ratio of the floodplain bottom width to the main channel top width was used to distinguish between configurations and was termed aspect ratio (α). Secondly, a straight trapezoidal channel with the floodplain on one side (an asymmetric floodplain) was tested for three different floodplain widths. Figures 1 and 2 illustrate the channel cross section of these configurations. An additional symmetrical floodplain configuration with a larger trapezoidal channel (Figure 1, Test 12) was also tested to ascertain any scale effects. The meandering channel configurations included three separate tests of single crossovers of three different lengths, a test of three consecutive crossovers, and a test of two consecutive crossovers that extended outside the floodplain. Figures 3, 4, and 5 illustrate these configurations. No. 8 crushed gravel (1/8-in. diameter) was attached to the floodplain in some configurations to observe the flow characteristics for the condition where the channel-floodplain wetted perimeter materials were distinctly different (floodplain rougher

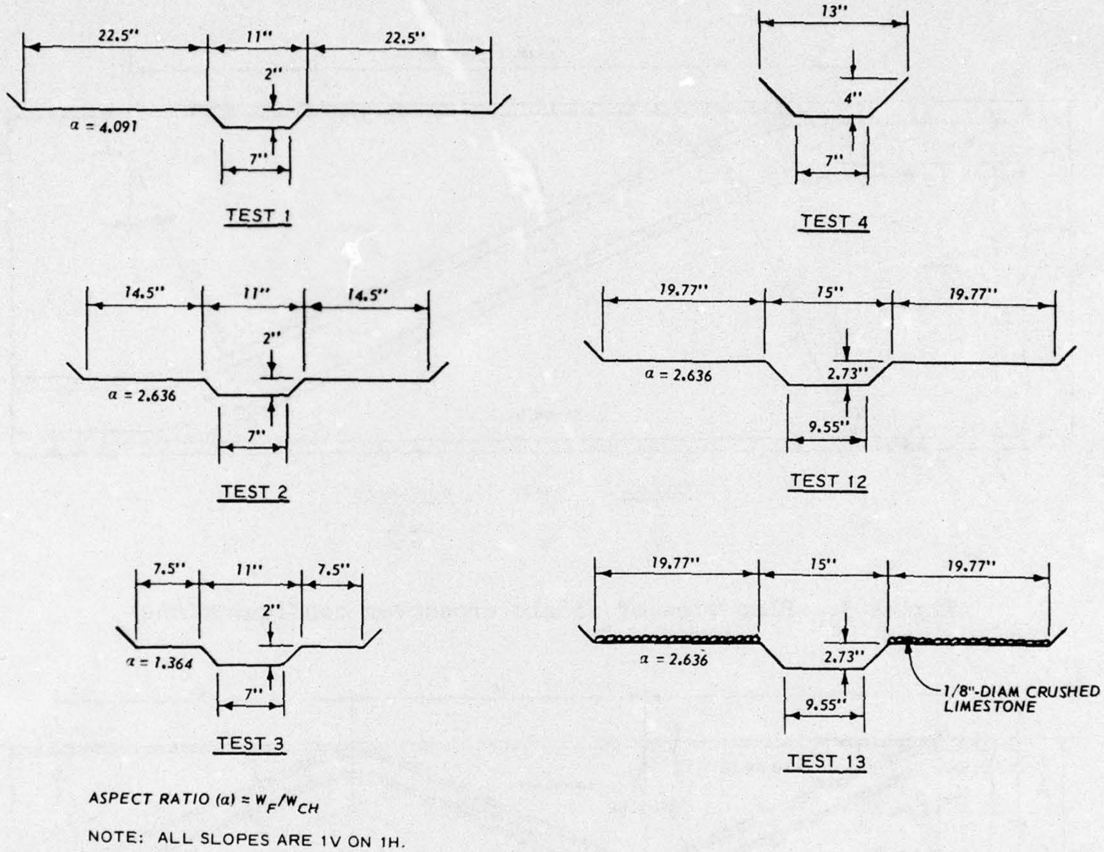


Figure 1. Test configurations of channels with symmetric floodplains

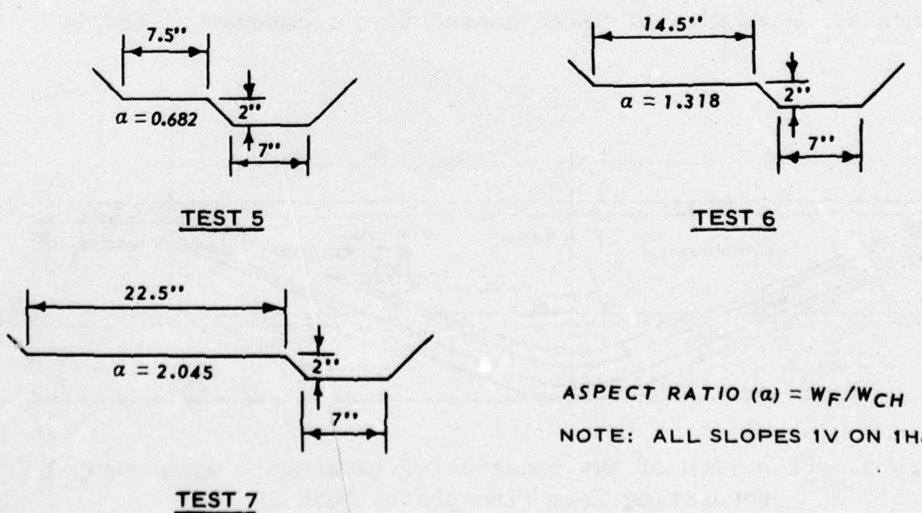
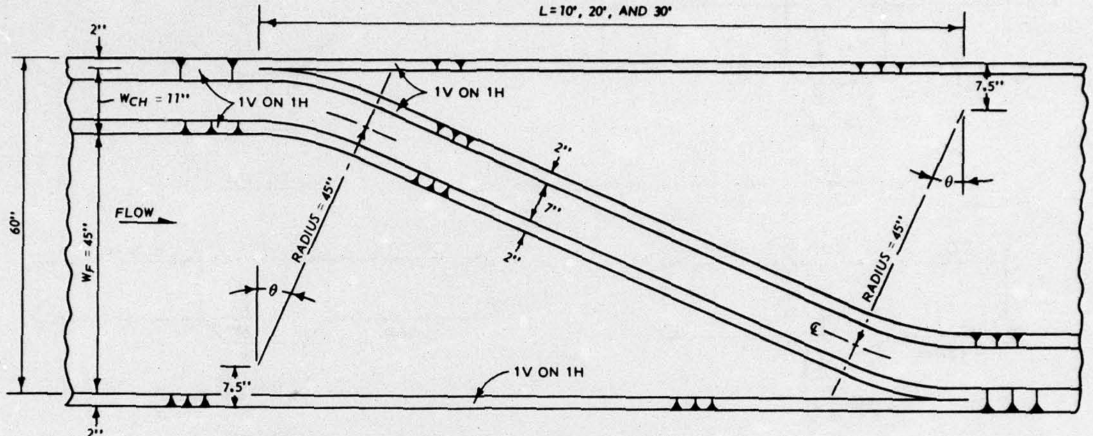


Figure 2. Test configurations of channels with asymmetric floodplains



TEST NO.	L (FT)	θ (DEGREES)
8	20	11.01
9	10	24.05
10	30	7.24

Figure 3. Plan view of single crossover configurations

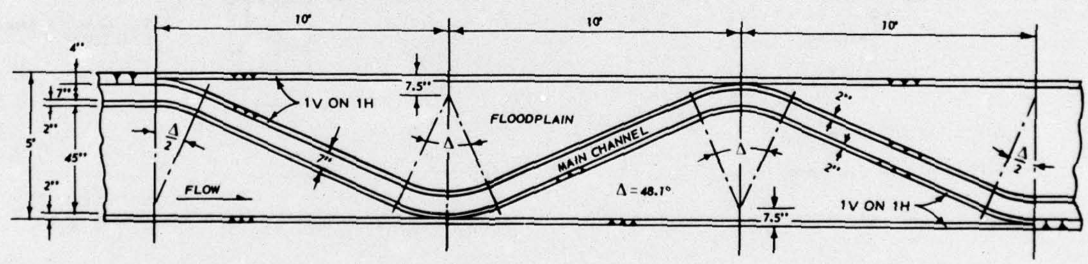


Figure 4. Plan view of three consecutive crossovers, Test 11

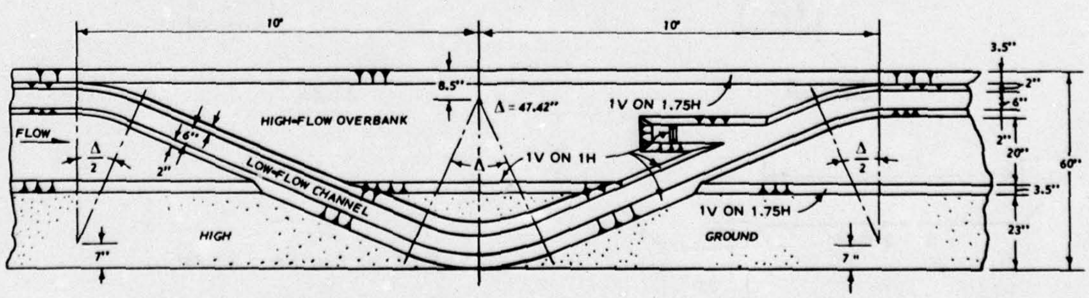


Figure 5. Plan view of two consecutive crossovers with channel separating from floodplain, Test 14

than main channel). The following tabulation summarizes the test schedule.

	Channel				Floodplain					
No.	Longitudinal Geometry	Base Width in.	Depth in.	Side Slope	Longitudinal Geometry	Base Width in.	Depth in.	Side Slope	Aspect Ratio	Figure No.
1	Prismatic	7	2	1V:1H	Prismatic and symmetric	45	2	1V:1H	4.091	1
2	Prismatic				Prismatic and symmetric	29	2	1V:1H	2.636	1
3	Prismatic				Prismatic and symmetric	15	2	1V:1H	1.364	1
4	Prismatic and trapezoidal				(No floodplain)	--	--	--	0.000	1
5	Prismatic and trapezoidal				Prismatic and asymmetric	7.5	2	1V:1H	0.682	2
6	Prismatic and trapezoidal				Prismatic and asymmetric	14.5			1.318	2
7	Prismatic and trapezoidal				Prismatic and asymmetric	22.5			2.045	2
8	Meandering 20-ft crossover				Prismatic	45			4.091	3
9	Meandering 10-ft crossover				Prismatic	45			4.091	3
10	Meandering 30-ft crossover				Prismatic	45			4.091	3
11	Meandering three 10-ft crossovers				Prismatic	45			4.091	4
12	Prismatic	9.55	2.73		Prismatic and symmetric	39.54	2.73		2.636	1
13	Prismatic	9.55	2.73		Prismatic w/ No. 8 gravel	39.54	2.73		2.636	1
14	Meandering two 10-ft crossovers. Channel outside floodplain	6	2		Prismatic	30*	2	1V:1.75H	2.000	5

* Total width, i.e., includes top width of channel.

Instrumentation

8. The discharge was measured by venturi meters of 6 by 3 in. and 3 by 1-1/2 in. Each venturi meter was calibrated to an error of 2 percent or less. Water-surface elevations were measured by standard point gages accurate to ±0.001 ft. The point gages were mounted on a carriage which traveled along the flume on a rail system. The rails were leveled to a still pool with a maximum deviation from the mean of ±0.003 ft.

9. Velocities were measured by a 1/8-in.-diam pitot tube connected to a ±0.1-psid pressure transducer. The pressure transducer was calibrated to an error of ±0.001 in. of water with a static differential. The pitot tube coefficient by previous investigations was found to be

very near 1; therefore, a value of 1 was assumed. A pressure transducer indicator was used and no way of damping the pressure fluctuations was allowed; therefore, the mean value of the meter reading was determined by balancing the fluctuations about the zero null point.

10. Surface current patterns on meandering configurations were recorded by time-lapse photography. Two techniques were used. One method consisted of a half-second exposure of the configuration with scattered 1/2-in.-square confetti carried through the area, thus yielding velocity vectors. The second method used a continuous exposure with a strobe operating every half second as confetti passed through the area, thus yielding surface streamlines containing velocity vectors.

PART III: TESTING PROCEDURES

Stage-Discharge Measurements

11. The mean channel flow depth for a known discharge was determined by measuring the channel bottom elevations and water-surface elevations at 5-ft intervals along the length of the flume. The mean depth was assumed to be the difference between the mean bottom and mean surface elevations in the reach in which uniform flow was apparent. Ten to eighteen discharge values were used to establish each stage-discharge curve.

12. The stage-discharge relation was determined for each configuration defined in paragraph 7 for bottom slopes of 0.001, 0.002, and 0.003 ft/ft (see Appendix A).

Measurement of Velocities

13. Vertical velocity profiles were obtained at several critical locations across the flow cross section for purposes of showing the flow distribution. These data were taken for each prismatic channel-floodplain configuration (both symmetric and asymmetric) at three different stages for each of the three slopes tested except for configuration 12 where velocities were measured only at one slope (0.001). The three stages were: flow within the channel (bank-full), floodplain flow depth less than 40 percent of the bank-full depth, and floodplain flow depth greater than 40 percent of the bank-full depth (see Appendix B).

14. The flume slope was set at 0.001 for the meandering configurations, and vertical velocity profiles across the flow section were obtained at several stations along the crossovers for in-channel and overbank flow conditions. Sufficient velocity profiles were taken to indicate the general flow distribution through a meandering configuration.

PART IV: RESULTS

Stage-Discharge Curves

15. Since flow profile measurements indicated that near-uniform flow occurred in the middle 40 ft of the flume (sta 20 to 60), this reach was designated as the test section. The average flow depth within the test section for each discharge was determined from the difference in the mean elevation of the bottom elevation measurements and the mean elevation of the water-surface measurements. Plots of flow depth versus discharge for all configurations tested are presented in Plates 1-5. Small standing waves and local variations in water-surface elevations were observed in some configurations. The meandering channels at steeper slopes exhibited the most local variations.

Computation of Resistance Coefficients

16. The three resistance coefficients (n, C, and f) for each point on the stage-discharge curve were computed by two basic approaches. First, the floodplain and channel were considered as a single channel and thus the hydraulic radius used in Equation 1, 2, or 3 to compute the respective coefficients was the total cross-sectional area divided by the total wetted perimeter. Results from the computations for Manning's n are presented in Plates 6-10 (and Tables A1-A14 of Appendix A). Data indicate that the n value at just over bank-full flow decreased suddenly to some minimum value and then increased with depth, approaching a constant value which was very near or slightly greater than the below bank-full value. The Chezy C and Darcy f resistance coefficients (also tabulated in Appendix A, Tables A1-A14) have similar discontinuities.

17. The second method of computing resistance coefficients was the "separate" channels approach. Resistance coefficients for the floodplain and the channel were assumed to be equal since both were constructed of like material. Manning's n was computed by Equation 5.

$$n = \frac{1.49}{Q} \left(A_F R_F^{2/3} + A_{CH} R_{CH}^{2/3} \right) S^{1/2} \tag{5}$$

where

A_F = cross-sectional area of the floodplain

R_F = hydraulic radius of the floodplain

A_{CH} = cross-sectional area of the channel

R_{CH} = hydraulic radius of the channel

Dividing lines were assumed to be a vertical line at the intersections of the channel and floodplain boundaries, and only the actual boundaries in the respective areas were considered as wetted perimeter. Plots of Manning's n computed by this method are presented in Plate 11 (see Tables A15-A20 in Appendix A). These data indicate an increase in the n value with increasing floodplain depth to some maximum; in some cases the n value held constant, while in other cases it decreased slightly at the higher depths. However, the n value was always greater for floodplain flow stages than for in-channel stages.

18. Figure 6 shows the variation of the Manning n value for flows within the channel for the different configurations. Some of these variations in channel roughness may have been due to the variations in the surface finish obtained by the various concrete finishers that worked on the project. Some increases in the Manning n value below bank-full stage were due to bend losses in the meandering configurations.

19. All resistance coefficients showed some variation with slope. Figure 6 illustrates the n value variation for slopes 0.001, 0.002, and 0.003 of each configuration tested. The flow resistance increased as the bottom slope increased, and the increase was nonlinear since a smaller increase usually occurred between slopes 0.002 and 0.003 than between slopes 0.001 and 0.002.

20. Test data on the configurations that had the No. 8 gravel on the floodplain to increase the roughness showed an increase in the Manning n for flow depths greater than bank-full (Plate 10). The

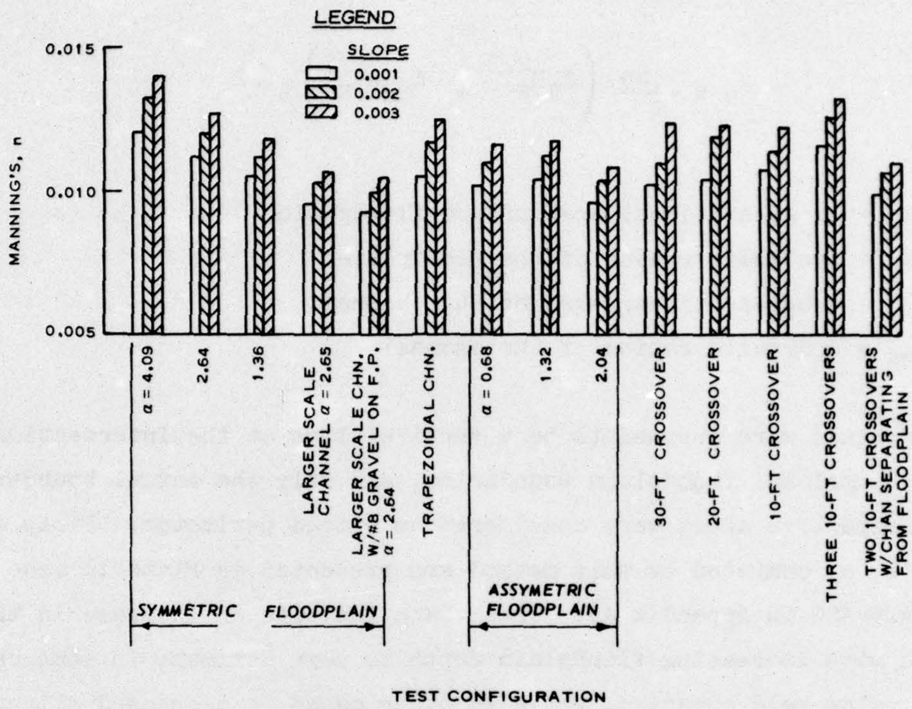


Figure 6. Average Manning's n for below bank-full flow

same shift was noted in the crossover configuration with the 10-ft crossover causing the greatest shift (Plates 8 and 9).

Velocity Profiles

21. The velocity measurements (see data in Appendix B) were integrated across their respective cross sections using the trapezoidal method to obtain a comparison with the venturi-measured discharges in Table 1 and in most tests the difference is less than 5 percent.

22. The average velocity was determined for each vertical velocity profile and normalized by dividing by the cross-sectional average velocity (measured discharge divided by the total area). This velocity ratio versus the normalized range (distance from left bank, facing downstream, divided by the total top width of the flow) was plotted on the same graph as a depth ratio versus normalized range (Plates 12-26). These two plots demonstrated significant similarity in shape but attempts to correlate the two were futile.

23. The horizontal, mean velocity profiles are superimposed over a plan view of crossover lengths of 10 and 20 ft in Plates 27 and 28. These plots illustrate the distortion of the velocity in the horizontal direction caused by the meandering channel. The horizontal velocity profile returned to its normal shape for a prismatic channel approximately 5 ft downstream of the crossover. The velocity vectors shown in Plates 27 and 28 are those components parallel to the floodplain sidewalls, although some of the flow in the channel was parallel with the angled channel walls. This implies that lateral flows existed and flow was exchanged between the channel and floodplain. The exchange of flow between the floodplain and channel is indicated in surface streamlines shown in Photo 1. The streamlines (traces) converged on a single line that was approximately tangent to the inside of both channel bends and apparently was a vortex shear line. Photos 2-4 show the surface current pattern for meandering channels. Photos 1-4 illustrate the transverse currents and the increasing velocity on the diverging side and decreasing velocity on the converging side of the floodplain.

Meandering Channel with Channel Separating from the Floodplain

24. During testing of the channel separation configuration (Test 14), significant deposition was observed in several critical locations. Sand, coal, and plastic materials were injected into the system approximately 20 ft upstream from the beginning of the meander. For discharge within the channel and after approximately two hours of operation, sediment deposition of coal and plastic occurred inside the exit of the high-flow drop structure (see Figure 5) and a sandbar formed in the channel just outside the structure. Photo 5 shows this deposition area. Deposition occurred during floodplain flow within the channel near the separation point and just before the channel reentered the floodplain (Photos 6 and 7); deposition also occurred in the high-flow drop structure (Photo 8).

PART V: ANALYSIS AND DISCUSSION

Interaction of Channel and Floodplain Flows in a Prismatic System

25. The Manning n computed by the single-channel method demonstrated an apparent decrease in value at just over bank-full stage and increased to near the below bank-full value at a flow depth where the floodplain depth is approximately 40 percent of the main channel bank-full depth. Since the stage-discharge plots are continuous, the apparent reduction in Manning's n appears to be a compensation for the sudden decrease in hydraulic radius. The Manning n value was normalized for each configuration by dividing by the n value at the main channel bank-full flow (n_B). When this n-ratio (n/n_B) was plotted against the aspect ratio (α) with the depth held constant, the shift appeared to be a function of aspect ratio and slope. Figure 7 shows a sample plot of n/n_B versus aspect ratio for depth ratios (maximum flow depth divided by main channel bank-full depth) of 1.1 and 1.4.

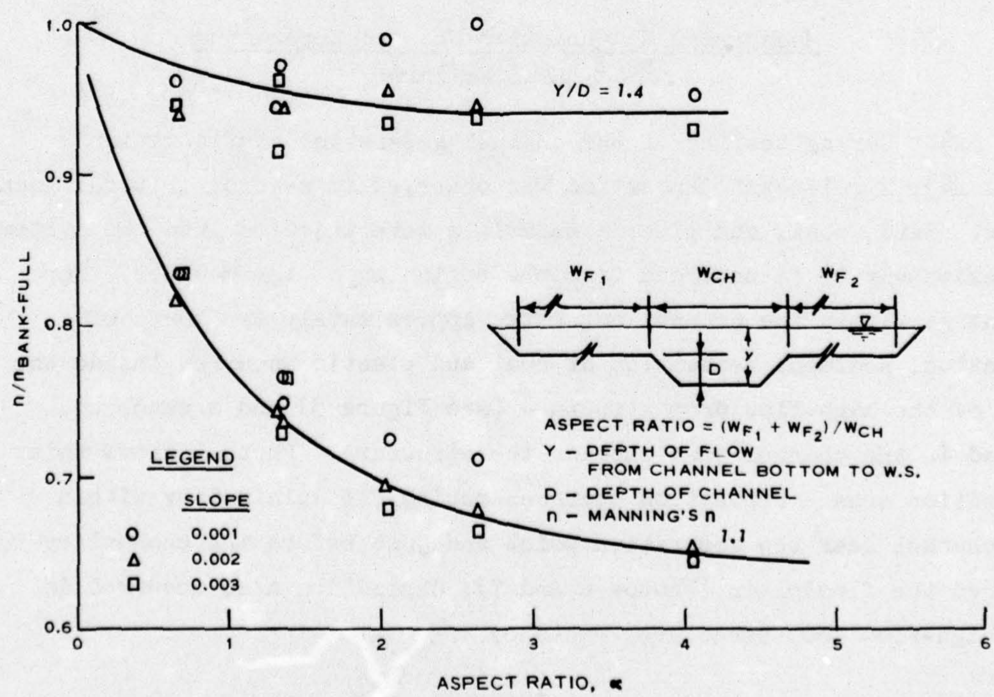


Figure 7. Curve fit of normalized data from prismatic channels

Curve-fitting techniques were applied to these plots, and an equation $n/n_B = a\alpha^{-b}$ was found to give the best fit at lower depths (Y/D = 1.1) by the least-squares technique. The effect of slope was neglected since it was much less than the effect of aspect ratio. There was more scatter of data at higher flow depths but less shift was noted. Consequently, in order to maintain a uniform set of curves, all curves were fit to the data with an equation of the above form. Figure 8 shows the resulting set of curves.

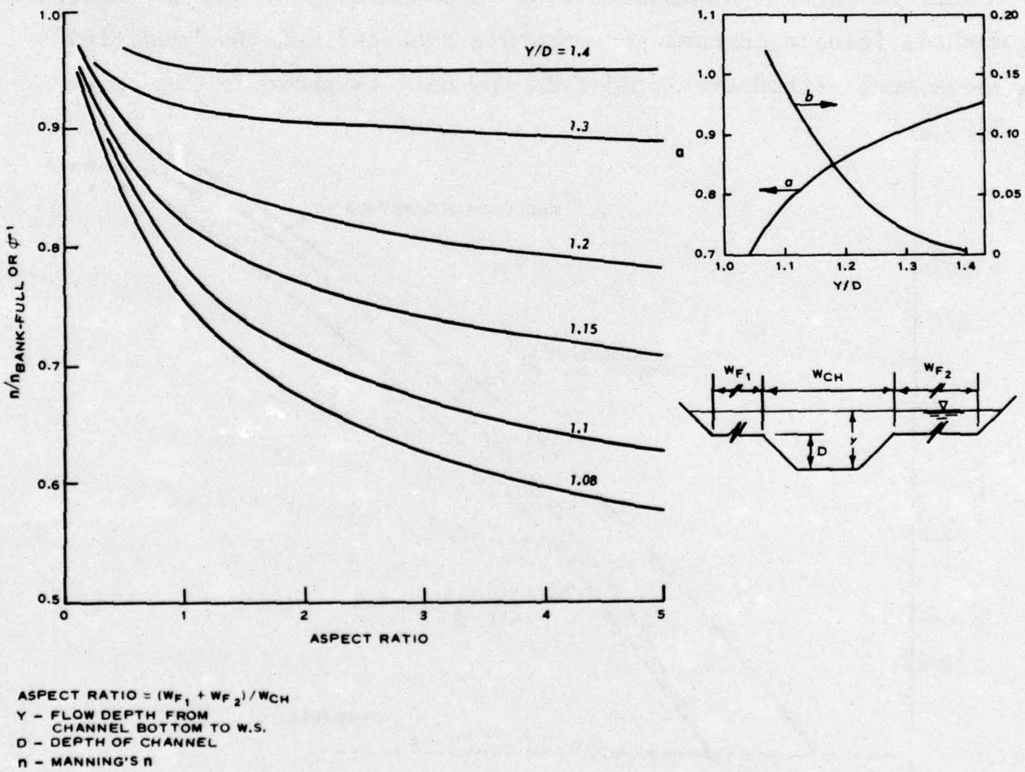


Figure 8. Correction factors for flood flow in prismatic channel-floodplain systems

26. The data used to develop the curves in Figure 8 could have been used to determine some simple correction factor (ϕ) to the Manning equation,

$$Q = \phi \frac{1.486}{n} AR^{2/3}S^{1/2} \qquad (6)$$

or the correction could have been applied to the hydraulic radius and thus yield an effective hydraulic radius, R_{eff} . However, the two approaches are related in the following manner.

$$\phi = \left(\frac{n}{n_B}\right)^{-1} = \left(\frac{R_{eff}}{R}\right)^{3/2} \tag{7}$$

Application of correction factors presented in Figure 8 has been termed the "modified" single-channel method. A comparison of the two theoretical methods (single channel and separate channel) and the "modified" single-channel method developed from the data is shown in Figure 9.

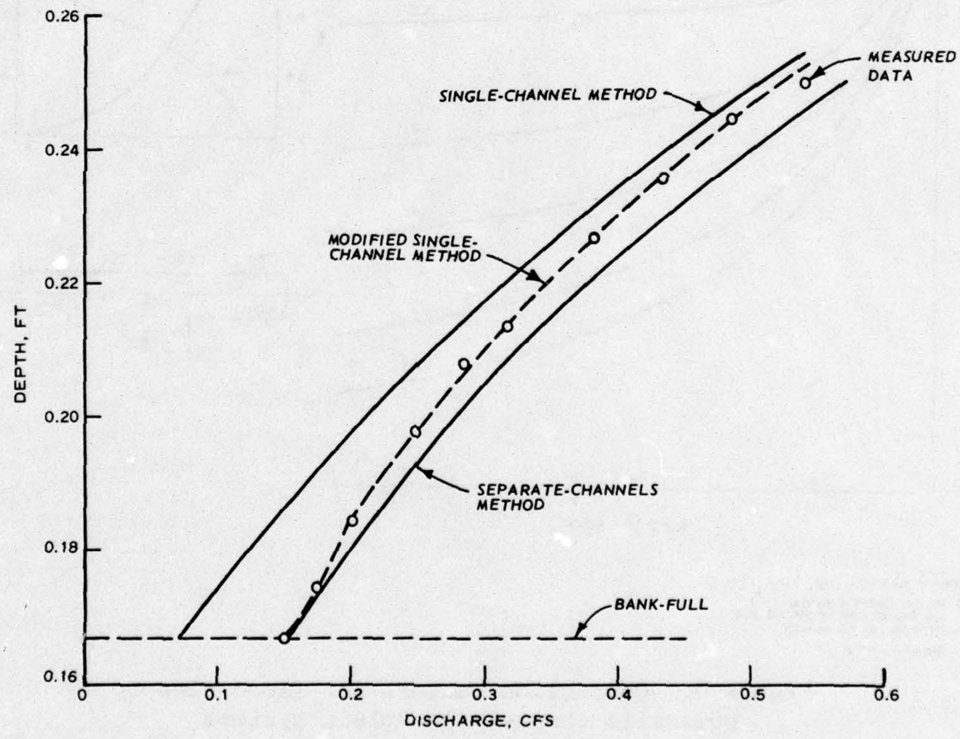


Figure 9. Comparison of measured data and theoretical methods

27. The resistance coefficients for the Chezy and Darcy equations were also computed and are tabulated in Tables A1-A10, Appendix A. Since the Chezy C is related to the Manning n through the hydraulic radius,

$$C = \frac{1.486}{n} R^{1/6} \tag{8}$$

A similar set of curves could be developed for the Chezy equation from the following relation

$$\frac{C_{eff}}{C} = \left(\frac{n}{n_B}\right)^{-1} = \phi \tag{9}$$

When used in the Colebrook-White equation the Darcy f yielded a negative relative roughness (equivalent sand roughness) for some depths of floodplain flow. An attempt was made (using the Colebrook-White equation) to determine a hydraulic radius that would properly define the flow conditions and yield the Darcy f ; but the solution of the resulting equation was not pratical, i.e., multiple solutions could be obtained within the range of consideration.

28. Application of the modified single-channel method to a channel-floodplain system where sections of the wetted perimeter have different roughness coefficients presents an even more difficult problem. It would appear that the correction factors from Figure 8 could be applied to the composite roughness coefficient as calculated by one of several formulas found in the literature. A study at WES[5] indicated that the U. S. Army Engineer District, Los Angeles (LAD), formula provided a reasonable estimate of the composite roughness coefficient for a rectangular channel with side roughness different from the bottom roughness. To test this assumption, Test 13 was conducted to provide data for comparison. No. 8 crushed limestone (1/8-in. diameter) was glued to the floodplain of the larger trapezoidal channel symmetrical floodplain configuration and the stage-discharge data were obtained. The n value of the 1/8-in. stone was obtained from Reference 5 to use in the LAD formula to compute the composite n value. The correction factor was obtained from Figure 8 and the discharge computed as per the suggested modified single-channel method. A comparison between the computed discharge and Test 14 data is shown in Plate 29. The discharge was also computed by the separate-channels method and plotted in

Plate 29. The modified single-channel method with the LAD formula appeared to predict the discharge-stage relationship more closely than the separate-channels method.

Velocity Profiles in the Prismatic Channel Systems

29. The velocity ratio plotted against the range ratio (Plates 12-26) demonstrated similarity to the depth ratio plotted against range ratio. However, the differences were not constant, and no correlation could be found between the geometric and/or hydraulic parameters. The retarded velocity ratio ($\bar{v}/\bar{V}$) at the center line of the main channel was assumed to be a result of secondary currents (Plates 13-26). The vortex columns photographed by Sellin[2] could be observed in the channel by spreading confetti over the flow surface. The transverse and secondary flows induced by these vortices could not be detected by the method used to measure velocity. Secondary currents such as these could have produced the net retardation in center-line velocity shown in Plates 13-26.

Meandering Channel That Separated from the Floodplain

30. When the channel separated from the floodplain, the total cross-sectional area was increased. If a constant energy level is maintained, the depth of flow must increase in the separated reach. Plate 30 is a plot of measured longitudinal water-surface elevations compared with the theoretical increase in elevation through the separated reach.

31. The increase in area apparently nullified the energy losses through the separated reach since the Manning n value at a depth ratio of 1.4 was 0.0103 to 0.0109 which compares with 0.0117 to 0.123 for a single 10-ft crossover that did not separate from the floodplain. Generally, no significant shift in resistance factors could be attributed to the separation.

32. Sediment deposition at several locations in this channel

system during flood-flow conditions (see paragraph 24) indicated a possible need for dredging after recession of flood flow. Also, the high-flow drop structure appeared to trap deposition and therefore became ineffective as an energy dissipator.

PART VI: CONCLUSIONS

Flow Resistance in Prismatic Channel-Floodplain Configuration

33. The Manning or Chezy equations (Equations 1 and 2) do not accurately predict the stage-discharge relation in a channel-floodplain configuration for shallow depths on the floodplain ($1.0 < Y/D < 1.4$) without adjustments to either the resistance coefficient or the hydraulic radius. Experimental data indicated that empirical relations can be developed to correct the basic equations and that these relations were functions of the aspect ratio (W_F/W_{CH}), depth ratio (Y/D), and to a smaller extent the bottom slope (Figure 8). Whether the floodplain was symmetric or asymmetric seemed to have little effect upon the correction factors. The data also indicated that for a composite cross section (floodplain and channel roughness different), the empirical correction factors could be applied to the effective resistance coefficient computed by the SPL formula. The discharge is computed as per the single-channel concept with accuracy exceeding the method where the channel and floodplain are separated (Plate 29). Furthermore, the effects of geometry seem to disappear at the higher stages, i.e., for $Y/D > 1.4$, it no longer became necessary to make any correction to the basic equations.

Transverse Velocity Profiles in Prismatic Configurations

34. Normalized velocity profiles showed remarkable similarity in shape to the normalized cross sections (Plates 12-26), but no correlation could be determined between the geometric and/or hydraulic parameters. Additional study may be warranted in this area.

Flow Resistance in Meandering Channels

35. The resistance factor increased as the crossover or meander length decreased for both in-channel and overbank flood-flow conditions.

Three consecutive crossovers increased resistance to flow by a factor of less than 3. No additional increase in resistance factors was observed in the configuration with the channel separating from the floodplain.

Velocity Profiles in Meandering Channels

36. Normalized velocity profiles of floodplain flow were highly distorted by a meandering channel. Velocities accelerated in diverging floodplain areas and decelerated in converging floodplain areas. Surface currents indicated flow was exchanged between floodplain and channels. When the channel separated from the floodplain, the highest floodplain velocities were on the side closer to the channel. Significant deposition may occur in configurations in which the channel separates from the floodplain.

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10. Sooky, A. A., The Flow Through a Meander-Floodplain Geometry, Ph. D. Dissertation, Purdue University, Jun 1964.

Table 1

Discharge Comparisons

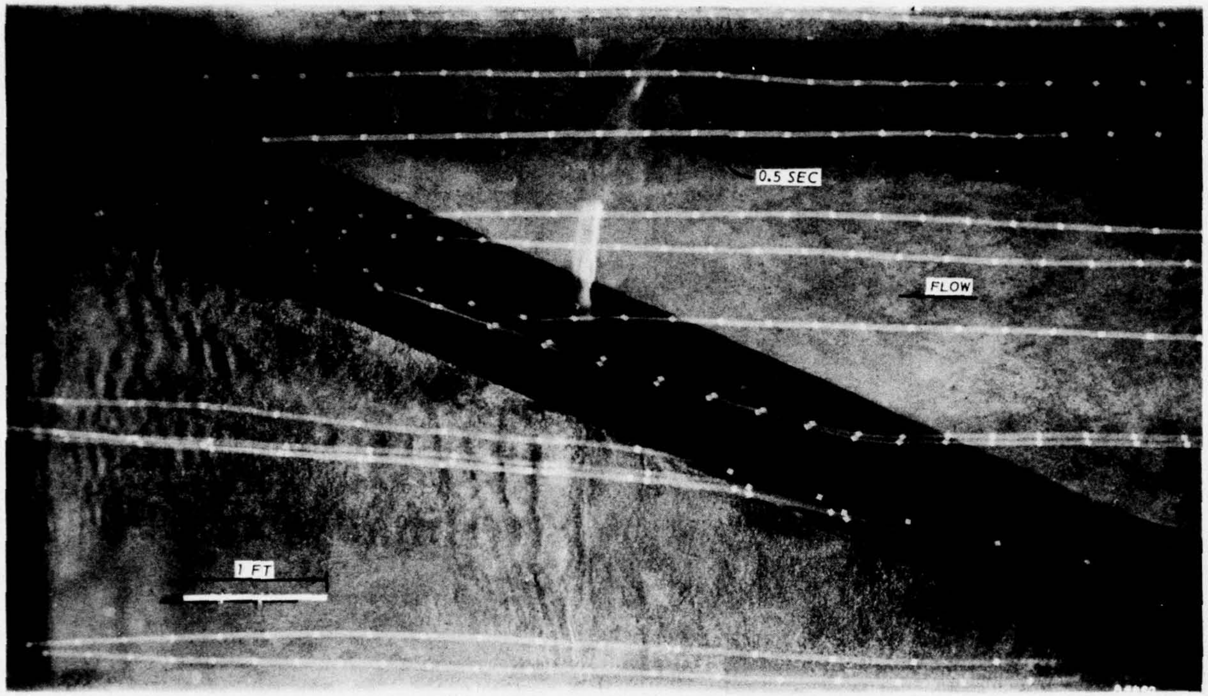
Crossover Length ft	Aspect Ratio	Configuration	Slope ft/ft	Depth ft	Measured Discharge cfs	Computed Discharge cfs	Percent Difference
Symmetric Floodplain							
	4.091	1	0.003	0.204	0.322	0.3273	-1.65
				0.173	0.176	0.1765	-0.28
				0.194	0.247	0.2424	1.86
			0.002	0.147	0.116	0.1193	-2.84
				0.179	0.180	0.1762	2.11
				0.231	0.437	0.4380	-0.23
				0.167	0.156	0.1472	5.64
			0.001	0.167	0.114	0.1118	1.93
				0.225	0.287	0.2941	-2.47
				0.186	0.153	0.1493	2.42
	2.636	2	0.001	0.202	0.186	0.1988	-6.88
				0.233	0.307	0.3200	-4.20
				0.142	0.101	0.1008	0.20
			0.002	0.232	0.394	0.4155	-5.46
				0.190	0.205*	0.2257	-10.10
				0.160	0.146	0.1511	-3.49
			0.003	0.195	0.285	0.2958	-3.79
				0.228	0.454	0.4680	-3.08
				0.160	0.172	0.1652	3.95
	1.364	3	0.001	0.251	0.351	0.3623	-3.22
				0.196	0.181	0.1885	-4.14
				0.221	0.247	0.2605	-5.47
			0.003	0.182	0.246	0.2482	-0.89
				0.220	0.409	0.4192	-2.59
				0.204	0.337	0.3438	-2.02
			0.002	0.193	0.224	0.2340	-4.46
				0.237	0.398	0.4038	-1.46
				0.219	0.320	0.3312	-3.50
Asymmetric Floodplain							
	0.682	5	0.003	0.254	0.518	0.5171	0.17
				0.233	0.410	0.4154	-1.32
				0.183	0.250	0.2523	-0.92
			0.002	0.225	0.302	0.3133	-3.74
				0.263	0.464	0.4559	1.75
				0.192	0.223	0.2213	0.76
			0.001	0.202	0.192	0.1953	-1.72
				0.240	0.285	0.2933	-2.91
				0.257	0.338	0.3434	-1.60
	1.318	6	0.003	0.189	0.286	0.2890	-1.05
				0.215	0.401	0.3797	5.31
				0.240	0.500	0.5082	-1.64
			0.002	0.192	0.252	0.2517	0.12

(Continued)

* Apparent bad reading, i.e., does not agree with rating curve.

Table 1 (Concluded)

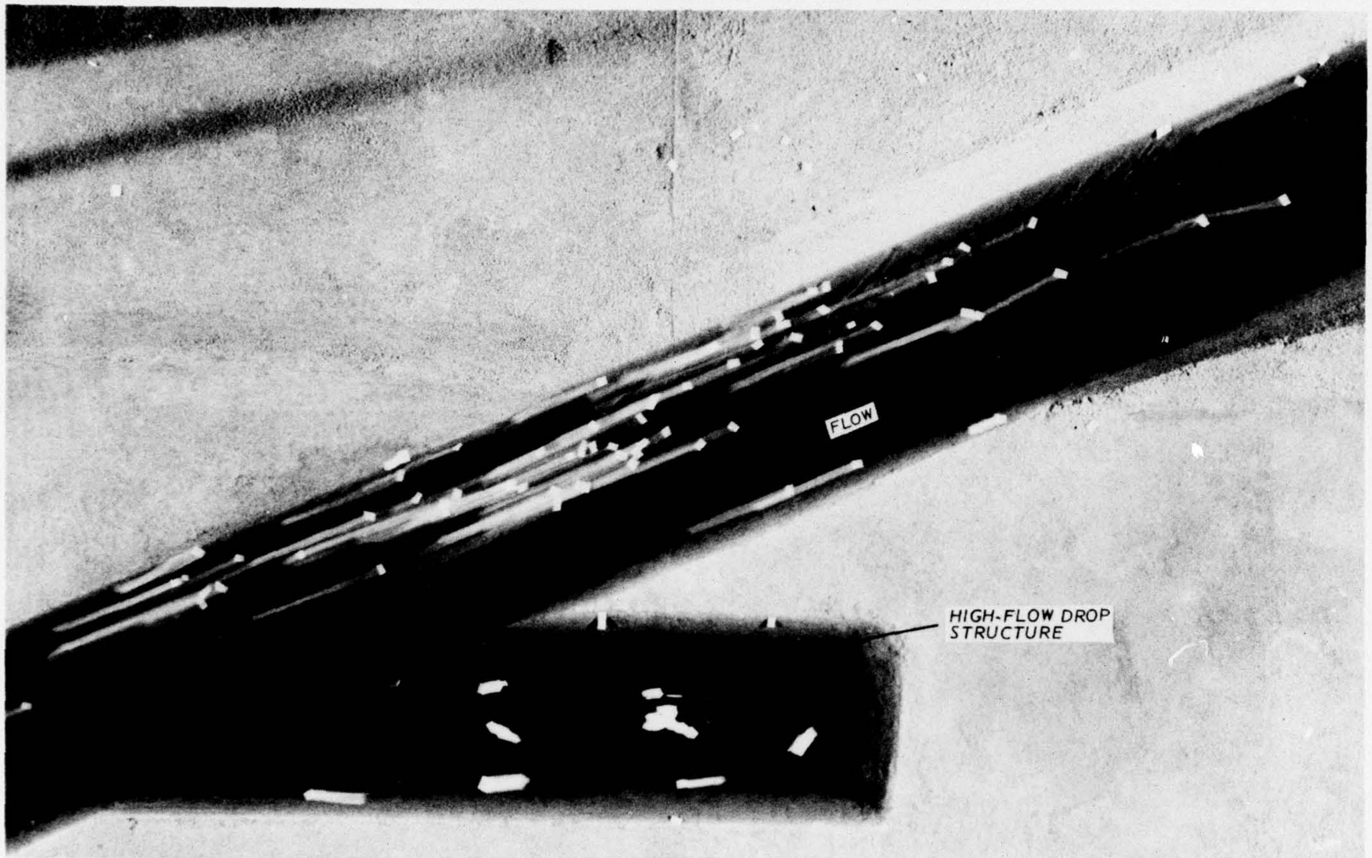
Crossover Length ft	Aspect Ratio	Configuration	Slope ft/ft	Depth ft	Measured Discharge cfs	Computed Discharge cfs	Percent Difference
			Asymmetric Floodplain (Continued)				
	1.318	6		0.219	0.356	0.3464	2.70
				0.258	0.502	0.4956	1.27
			0.001	0.196	0.185	0.1894	-2.38
				0.240	0.316	0.3177	-0.54
				0.287	0.490	0.4843	1.16
	2.045	7	0.003	0.179	0.255	0.2525	0.98
				0.198	0.352	0.3573	-1.51
				0.225	0.480	0.4874	-1.54
			0.002	0.183	0.232	0.2323	-0.13
				0.204	0.321	0.3206	0.12
				0.238	0.473	0.4767	-0.78
			0.001	0.268	0.506	0.5076	-0.32
				0.237	0.356	0.3561	-0.03
				0.193	0.197	0.1962	0.41
			Meandering Channel				
10	4.091	9	0.001	0.162	0.121	0.1176	2.78
10			0.001	0.210	0.248	0.2628	-5.96
10			0.001	0.211	0.249	0.2718	-9.17
10			0.001	0.209	0.250	0.2475	1.00
10			0.001	0.199	0.204	0.2045	-0.23
10			0.001	0.211	0.251	0.2493	0.67
20		8	0.001	0.251	0.505	0.4823	4.49
20			0.001	0.250	0.504	0.5078	-0.76
20			0.001	0.250	0.505	0.4529	10.33
20			0.001	0.250	0.503	0.5335	-6.07
20			0.001	0.142	0.102	0.0984	3.52
20			0.001	0.137	0.101	0.0921	8.81
20			0.001	0.215	0.288	0.2969	-3.10
3-10		11	0.001	0.243	0.289	0.2899	-0.32
3-10			0.001	0.245	0.292	0.3254	-11.45
			Larger Scale Channel				
Uniform roughness	2.636	12	0.001	0.194	0.258	0.2698	-4.57
Uniform roughness			0.001	0.244	0.397	0.3871	2.50
Uniform roughness			0.001	0.289	0.676	0.6460	4.43
(With No. 8 gravel on floodplain)		13	0.001	0.202	0.545	0.5211	4.39
(With No. 8 gravel on floodplain)			0.001	0.251	0.395	0.3904	1.17
			Meandering Channel with Channel Separating from Floodplain				
(Maximum separation station)	2.000	14	0.001	0.226	0.249	0.2477	0.52
			0.001	0.194	0.167	0.1687	0.00



TEST CONDITIONS
DISCHARGE 0.25 CFS
SLOPE 0.001

SURFACE STREAMLINES
MEANDERING CHANNEL WITH 10-FT CROSSOVER

PHOTO 1



TEST CONDITIONS

SLOPE 0.001
EXPOSURE TIME 0.5 SEC

NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

SURFACE CURRENT PATTERNS
LOW-FLOW, HIGH-FLOW STRUCTURE

PHOTO 2

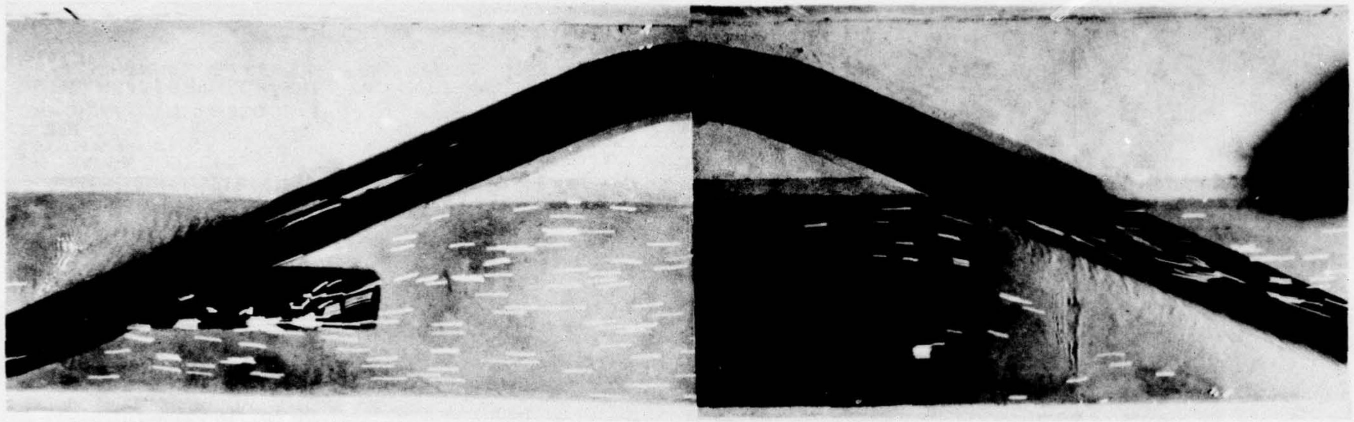
TEST CONDITIONS

DISCHARGE 0.392 CFS
DEPTH 0.261 FT
SLOPE 0.001
EXPOSURE TIME 0.5 SEC

NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

SURFACE CURRENT PATTERNS FOR HIGH FLOODPLAIN FLOW

PHOTO 3



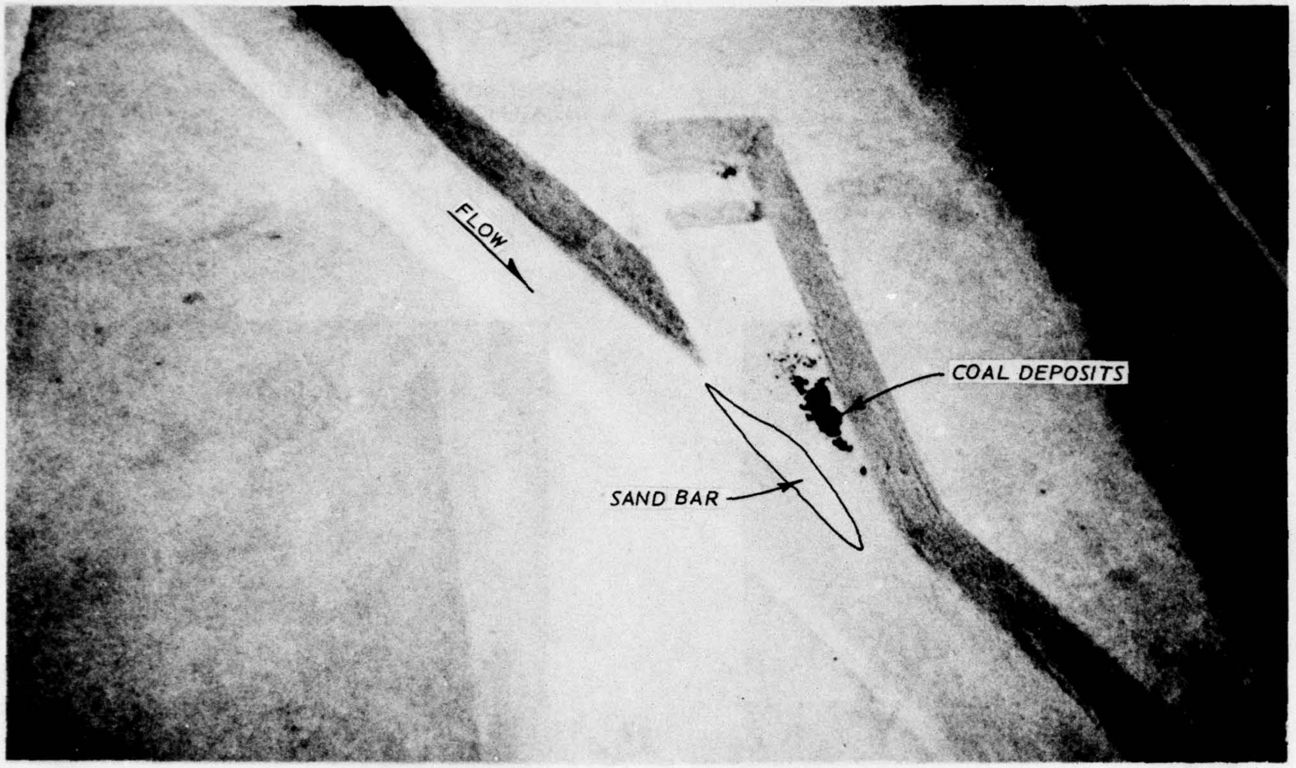
TEST CONDITIONS

DISCHARGE 0.155 CFS
DEPTH 0.194 FT
SLOPE 0.001
EXPOSURE TIME 0.5 SEC

NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

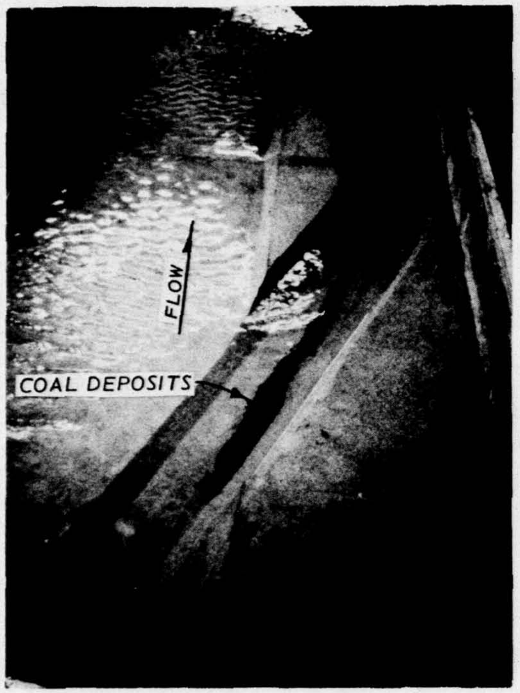
SURFACE CURRENT PATTERNS FOR LOW FLOODPLAIN FLOW

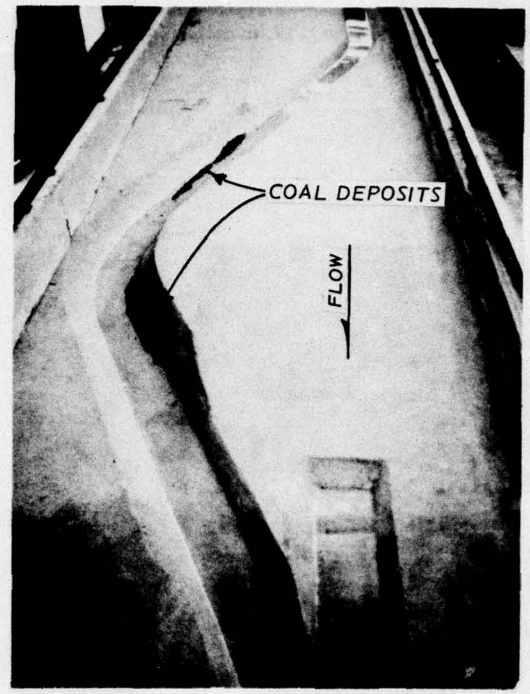
PHOTO 4



NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

DEPOSITION IN HIGH-FLOW DROP STRUCTURE WITH FLOW WITHIN CHANNEL



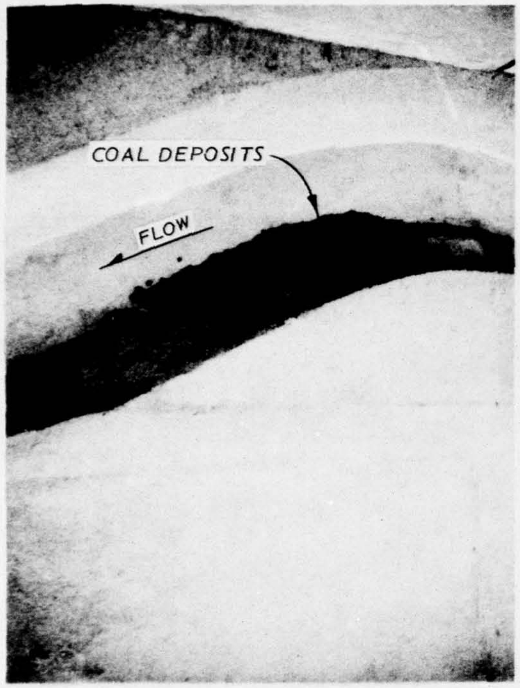


TEST CONDITIONS
DISCHARGE 0.29 CFS
SLOPE 0.001

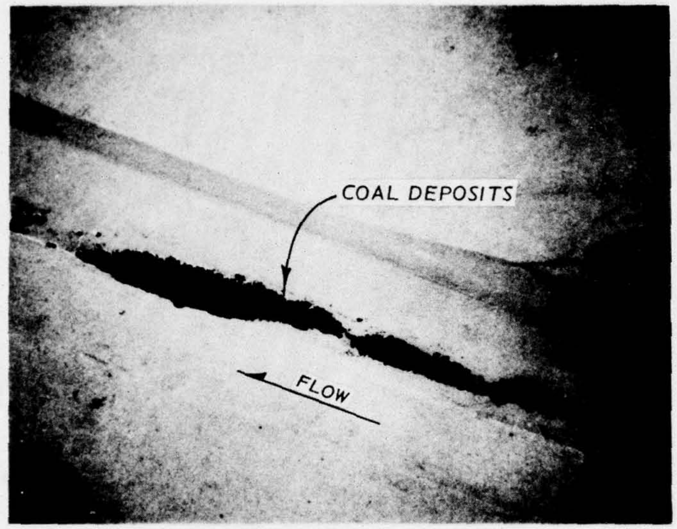
NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

DEPOSITION IN CHANNEL
DURING FLOOD FLOW

PHOTO 6



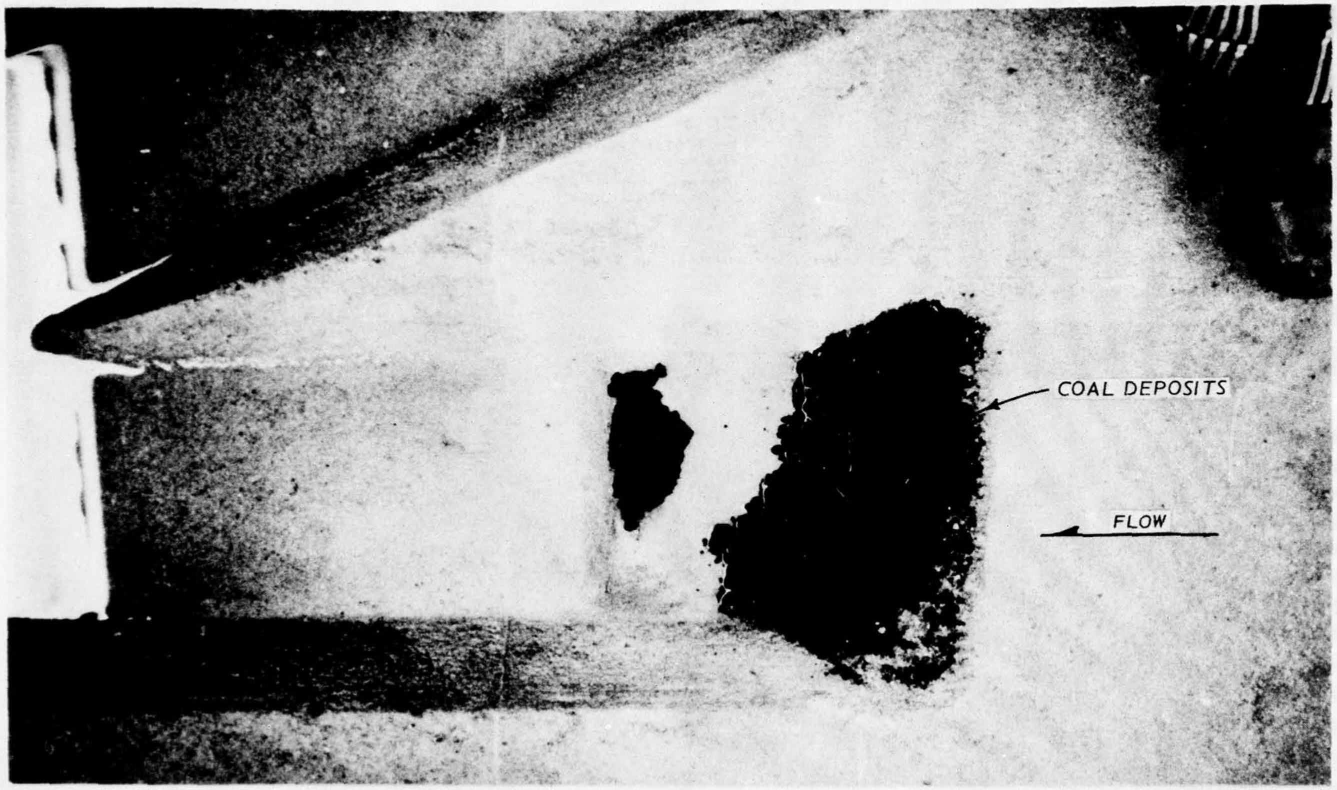
DEPOSITION DOWNSTREAM OF BEND



DEPOSITION AT SEPARATION POINT

NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

DEPOSITION DOWNSTREAM AND AT SEPARATION POINT IN CHANNEL DURING FLOOD FLOW

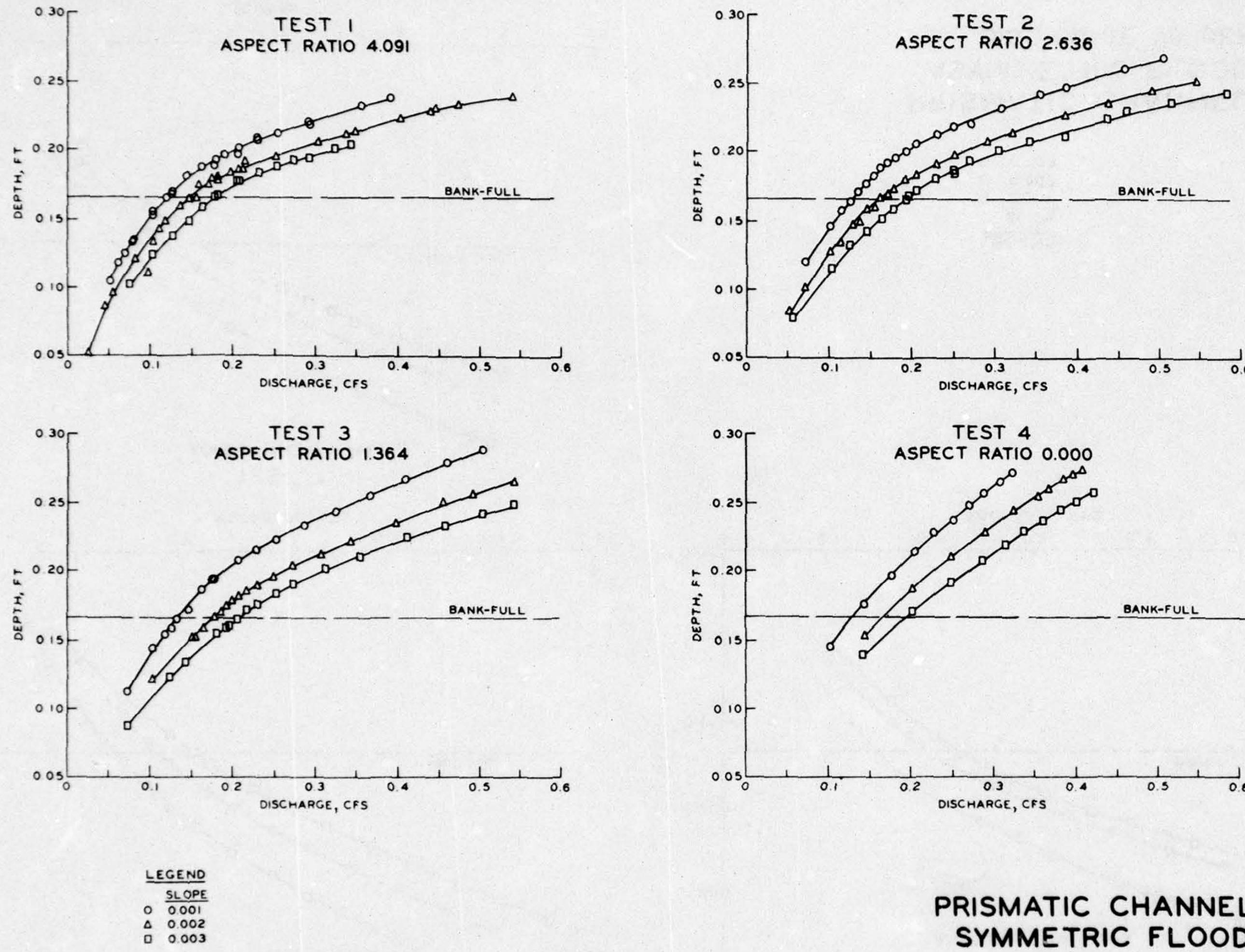


TEST CONDITIONS
DISCHARGE 0.29 CFS
SLOPE 0.001

NOTE: MEANDERING CHANNEL TWO 10-FT CROSSOVERS WITH CHANNEL SEPARATING FROM THE FLOODPLAIN.

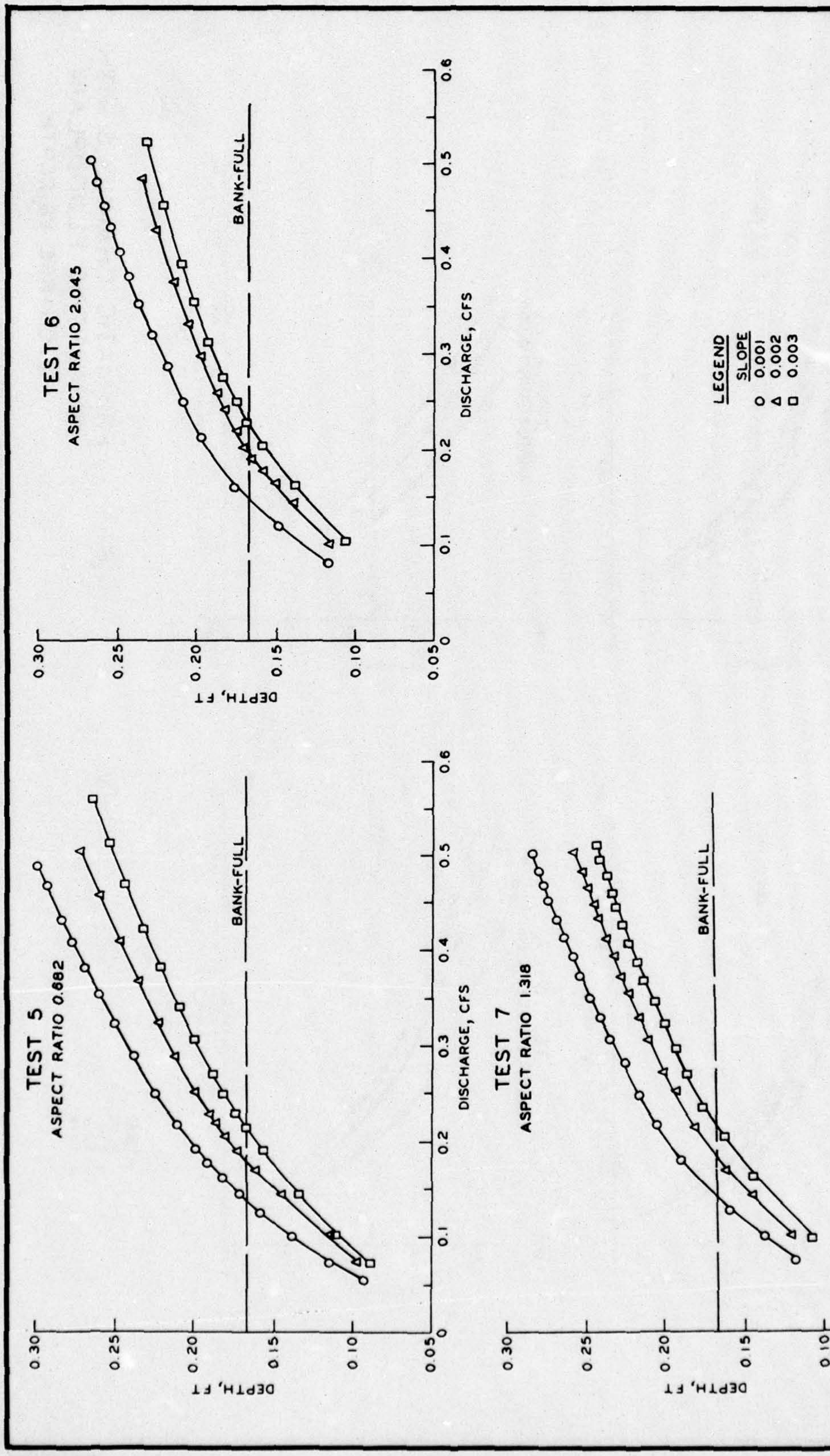
DEPOSITION IN HIGH-FLOW DROP STRUCTURE DURING FLOOD FLOW

PHOTO 8



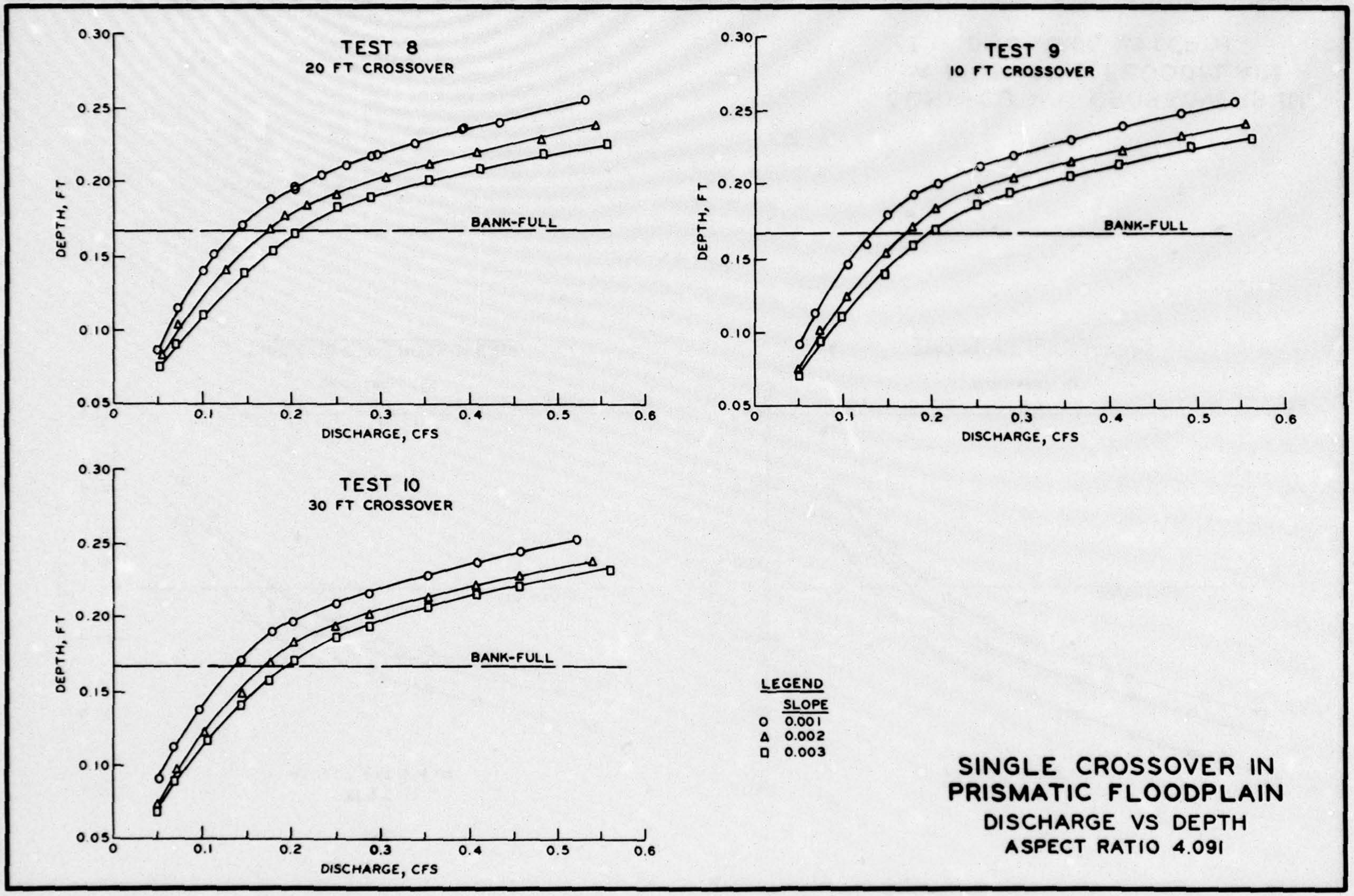
PRISMATIC CHANNELS WITH SYMMETRIC FLOODPLAIN
DISCHARGE VS DEPTH

PLATE 1

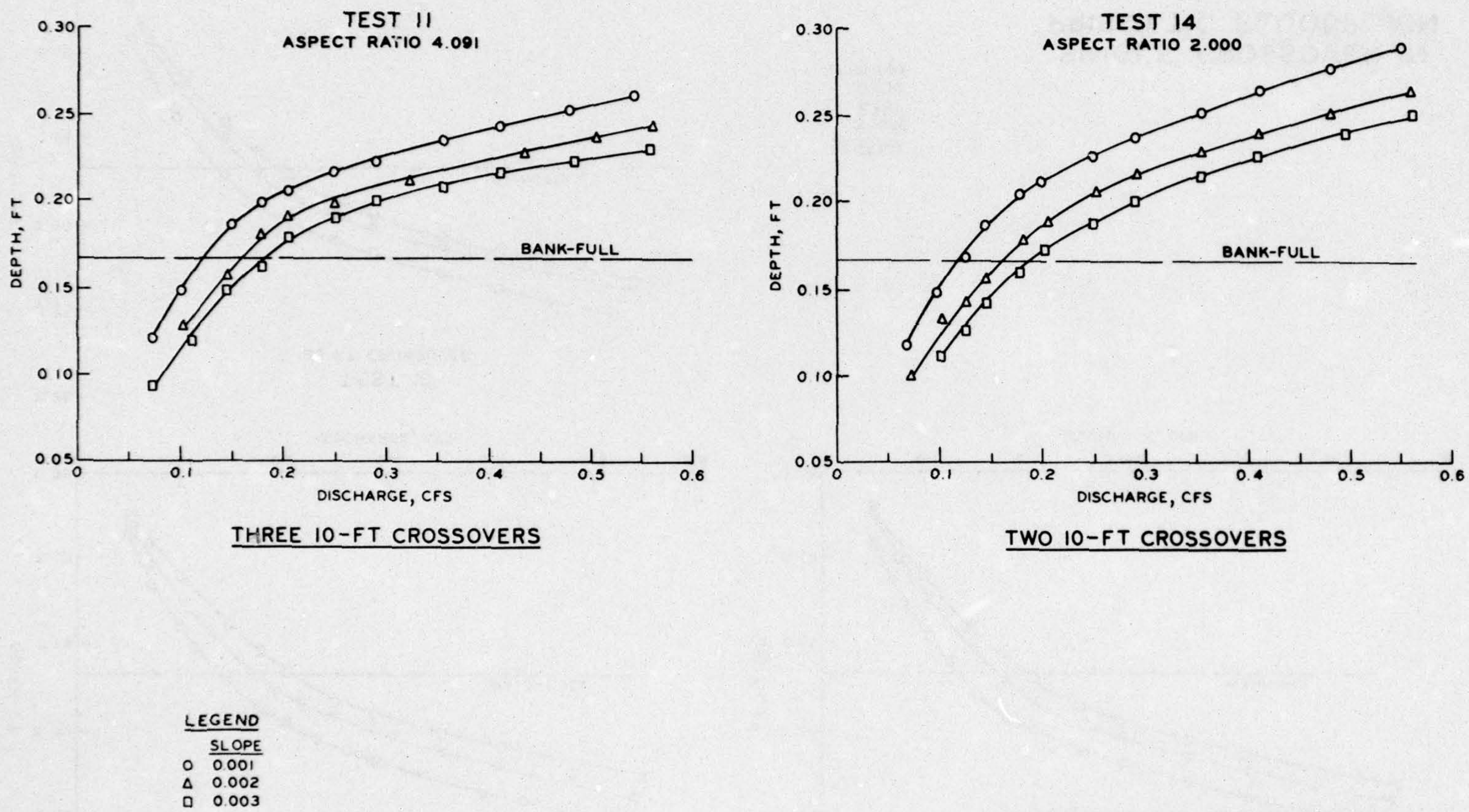


PRISMATIC CHANNELS WITH ASYMMETRIC FLOODPLAIN
DISCHARGE VS DEPTH

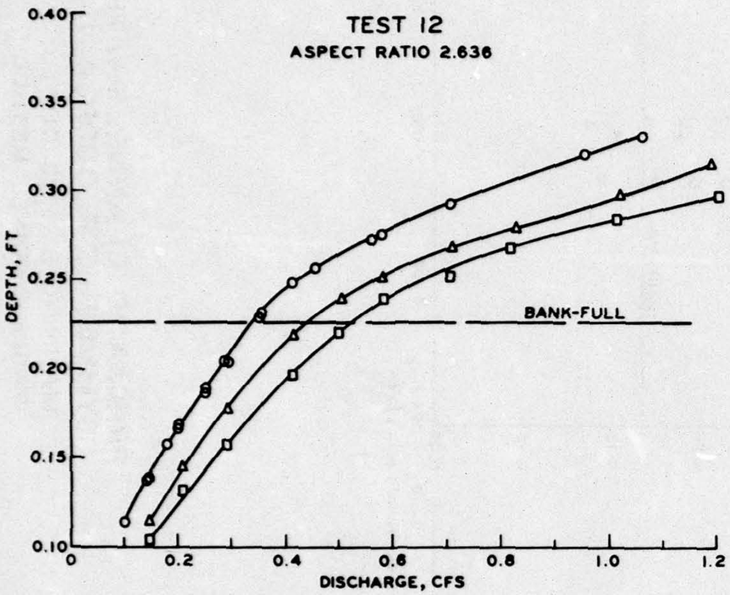
PLATE 2



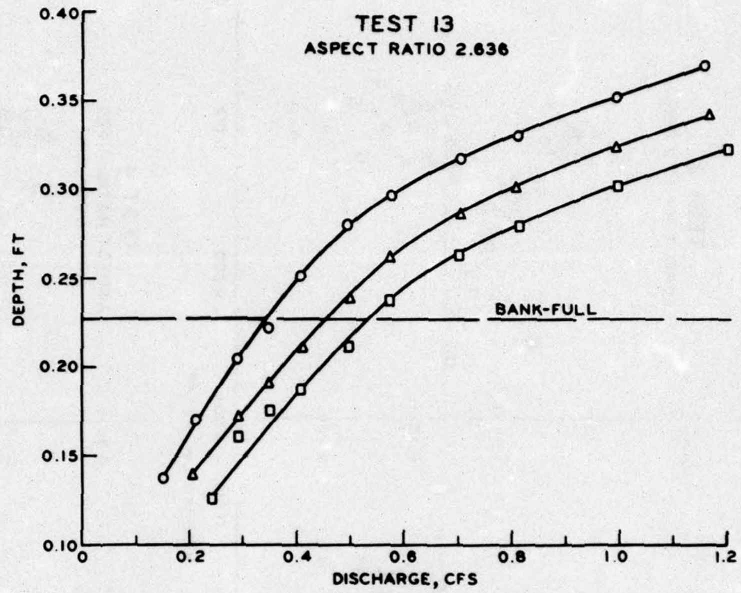
SINGLE CROSSOVER IN
PRISMATIC FLOODPLAIN
DISCHARGE VS DEPTH
ASPECT RATIO 4.091



CONSECUTIVE CROSSOVERS IN
A PRISMATIC FLOODPLAIN
DISCHARGE VS DEPTH



SMOOTH FLOODPLAIN WITH SMOOTH CHANNEL

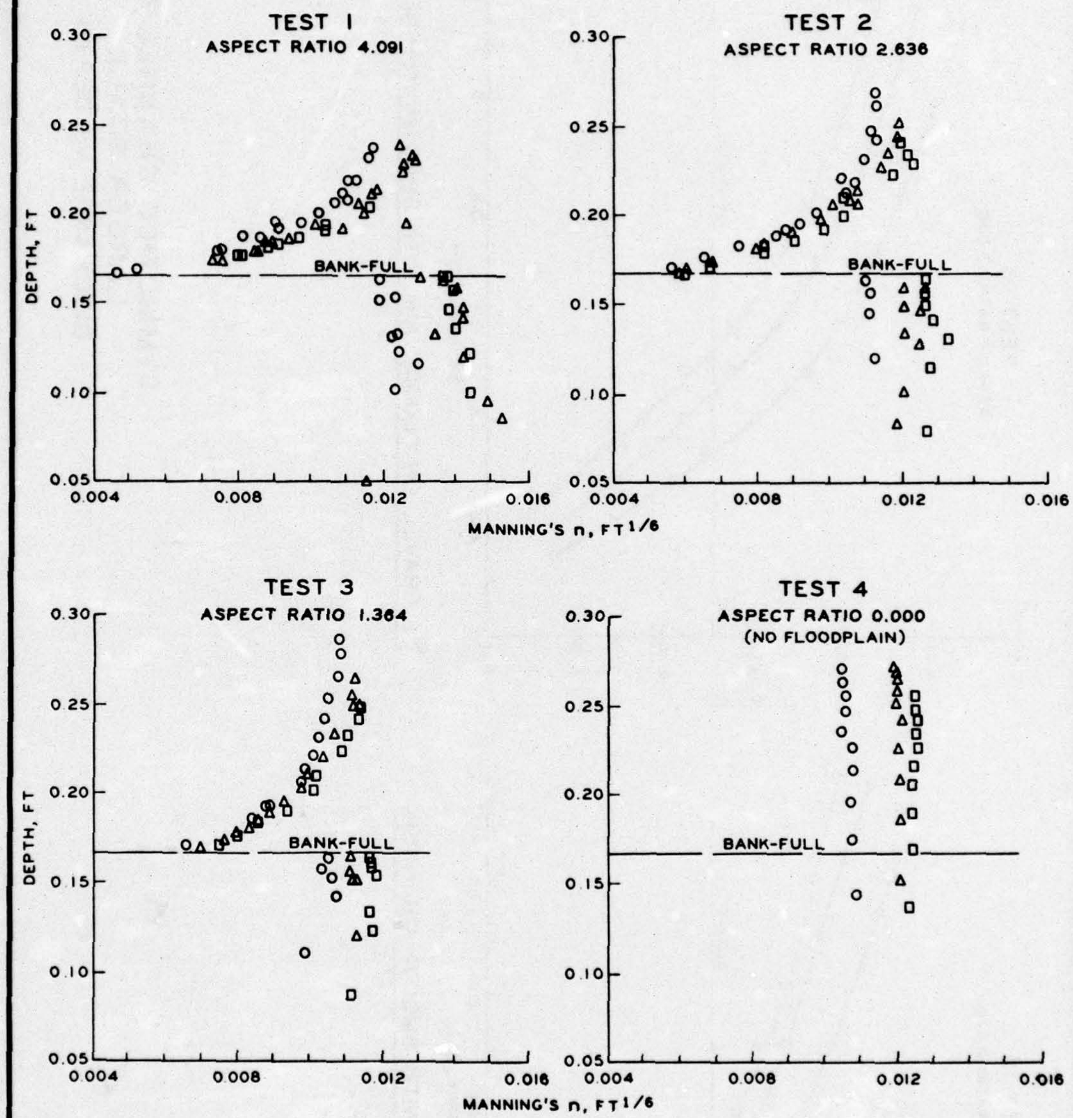


#8 GRAVEL ON FLOODPLAIN WITH SMOOTH CHANNEL

LEGEND

	SLOPE
O	0.001
Δ	0.002
□	0.003

SYMMETRIC CHANNEL OF
LARGER SCALE
DISCHARGE VS DEPTH



FROM MANNING'S EQUATION

$$n = \frac{1.486}{Q} AR^{2/3} S^{1/2}$$

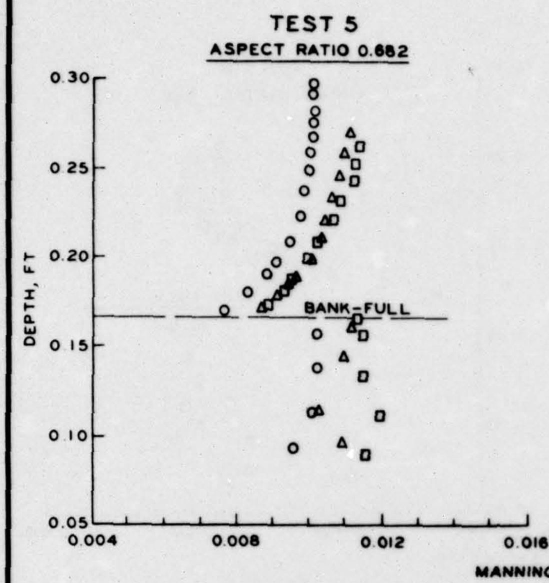
A TOTAL CROSS-SECTIONAL AREA
R HYDRAULIC RADIUS
Q MEASURED DISCHARGE
S INVERT SLOPE

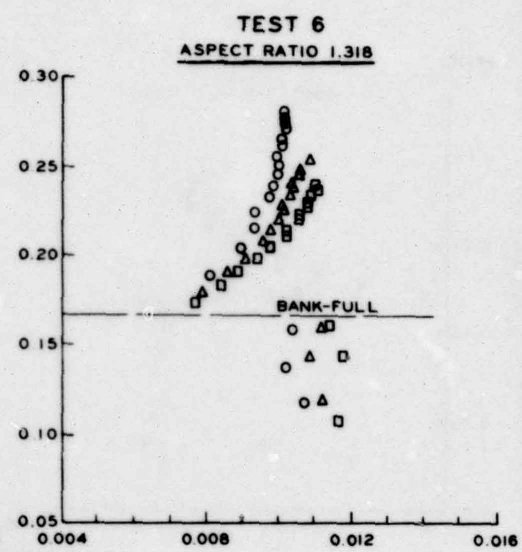
LEGEND

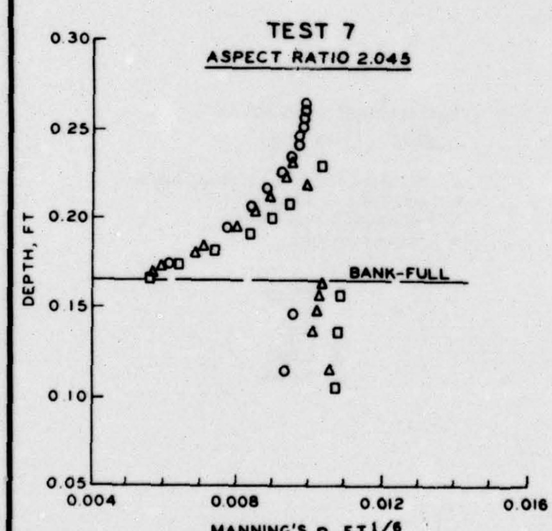
	SLOPE
O	0.001
Δ	0.002
□	0.003

PRISMATIC CHANNELS WITH SYMMETRIC FLOODPLAIN

MANNING'S n VS DEPTH
SINGLE-CHANNEL METHOD







FROM MANNING'S EQUATION:

$$n = \frac{1.486}{Q} A R^{2/3} S^{1/2}$$

A TOTAL CROSS-SECTIONAL AREA
R HYDRAULIC RADIUS
Q MEASURED DISCHARGE
S INVERT SLOPE

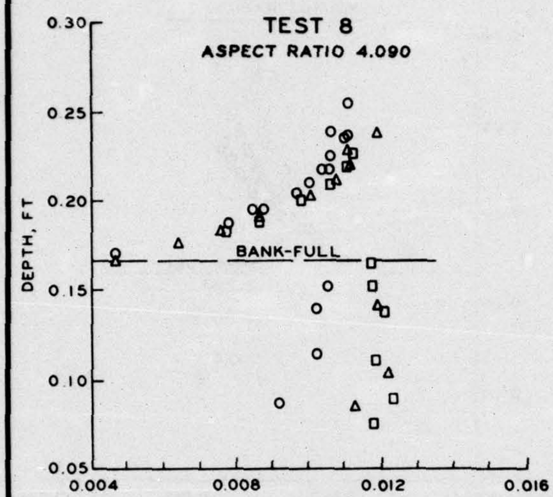
LEGEND

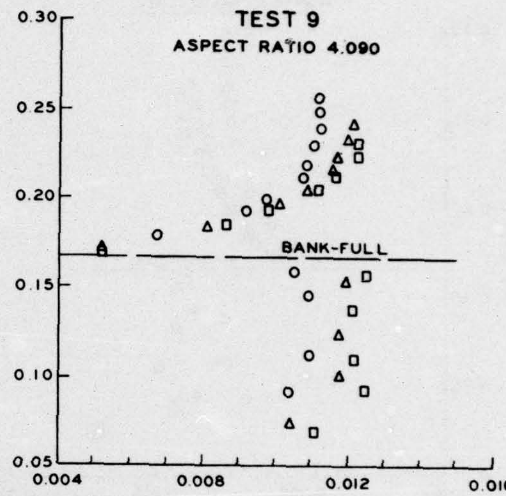
	SLOPE
O	0.001
Δ	0.002
□	0.003

PRISMATIC CHANNELS WITH ASYMMETRIC FLOODPLAIN

MANNING'S n VS DEPTH

SINGLE-CHANNEL METHOD

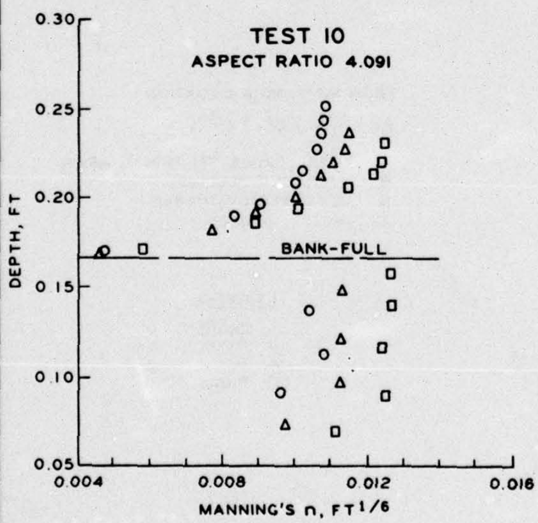




MANNING'S n, FT$^{1/6}$

10-FT CROSSOVER

20-FT CROSSOVER



30-FT CROSSOVER

FROM MANNING'S EQUATION:

$$n = \frac{1.486}{Q} AR^{2/3} S^{1/2}$$

A TOTAL CROSS-SECTIONAL AREA
R HYDRAULIC RADIUS
Q MEASURED DISCHARGE
S INVERT SLOPE

LEGEND

	SLOPE
O	0.001
Δ	0.002
□	0.003

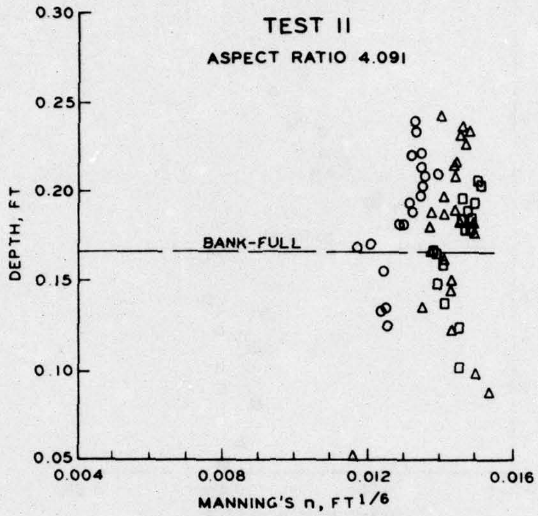
MEANDERING CHANNEL IN PRISMATIC FLOODPLAIN

MANNING'S n VS DEPTH

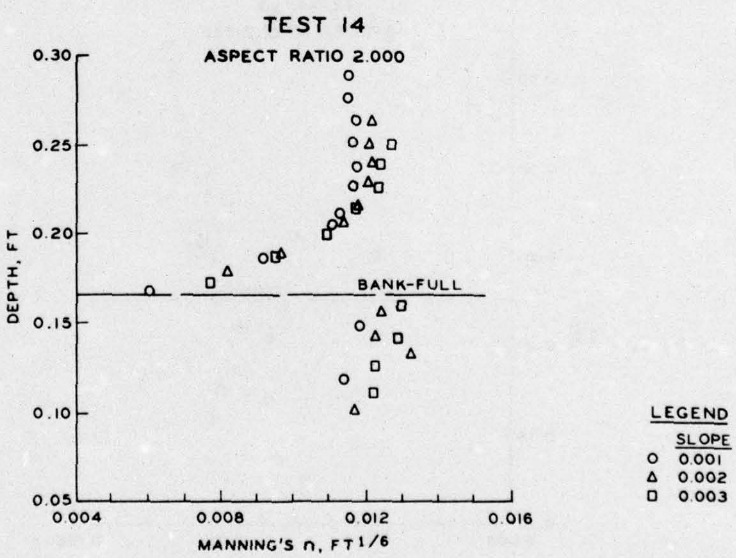
SINGLE-CHANNEL METHOD

TESTS 8, 9, AND 10

PLATE 8



THREE 10-FT CROSSOVERS



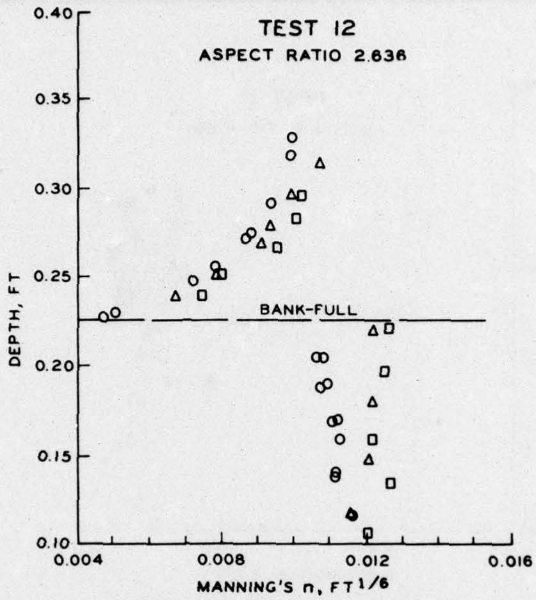
TWO 10-FT CROSSOVERS

FROM MANNING'S EQUATION

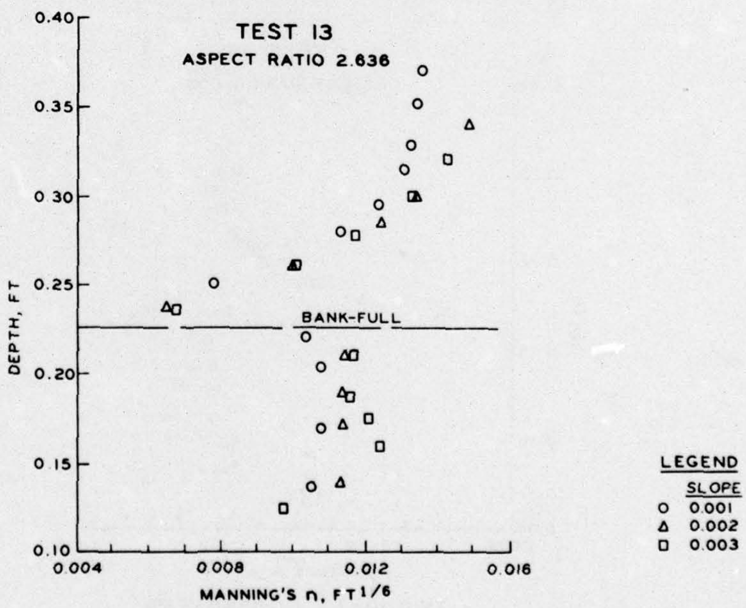
$$n = \frac{1.486}{Q} AR^{2/3} S^{1/2}$$

A TOTAL CROSS-SECTIONAL AREA
R HYDRAULIC RADIUS
Q MEASURED DISCHARGE
S INVERT SLOPE

MEANDERING CHANNEL IN PRISMATIC FLOODPLAIN
MANNING'S n VS DEPTH
SINGLE-CHANNEL METHOD
TESTS 11 AND 14



SMOOTH FLOODPLAIN AND CHANNEL



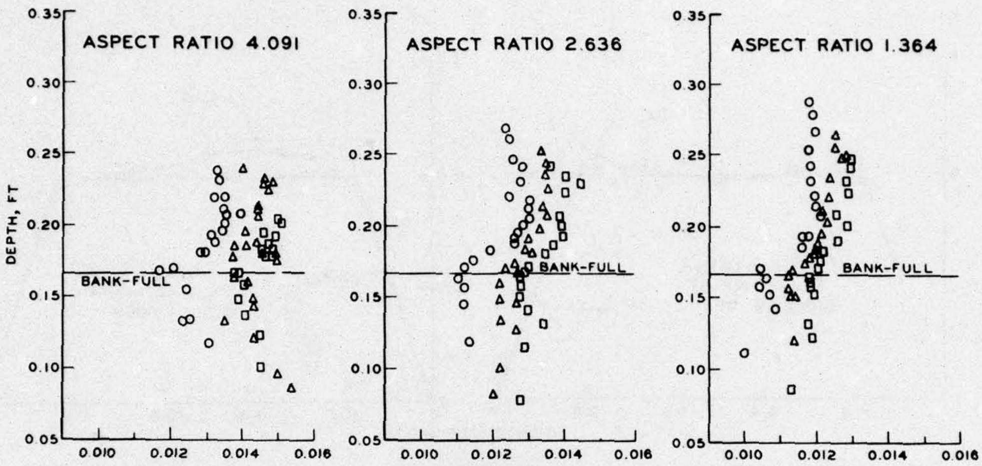
#8 GRAVEL ON
FLOODPLAIN AND SMOOTH CHANNEL

FROM MANNING'S EQUATION

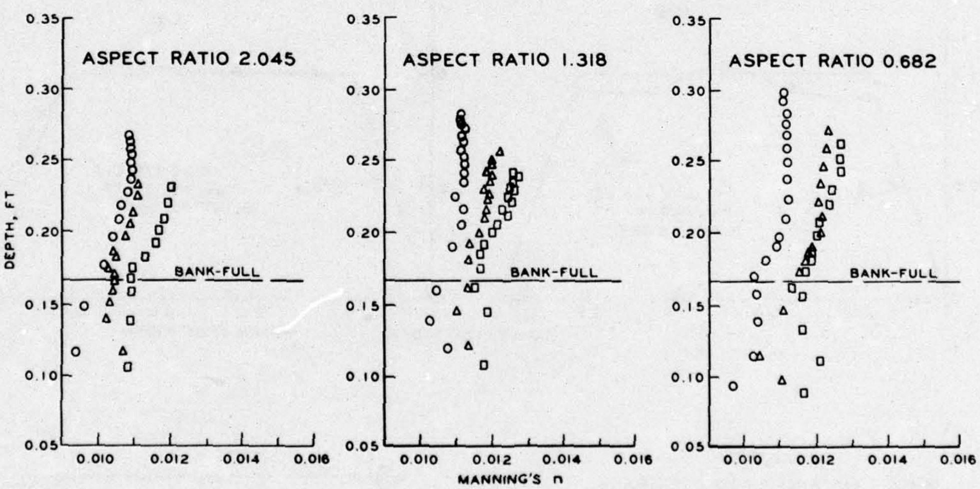
$$n = \frac{1.486}{Q} AR^{2/3} S^{1/2}$$

A TOTAL CROSS-SECTIONAL AREA
R HYDRAULIC RADIUS
Q MEASURED DISCHARGE
S INVERT SLOPE

PRISMATIC CHANNEL OF LARGER SCALE WITH SYMMETRIC FLOODPLAIN
MANNING'S n VS DEPTH
SINGLE-CHANNEL METHOD

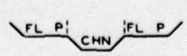


SYMMETRIC FLOODPLAIN



ASYMMETRIC FLOODPLAIN

$$n = \frac{1.486}{Q}\left(A_{CH} R_{CH}^{2/3} + A_{FP} R_{FP}^{2/3}\right) S^{1/2}$$



A_{CH} AREA OF CHANNEL
A AREA OF FLOODPLAIN
n MANNING'S N
Q DISCHARGE
R_{CH} HYDRAULIC RADIUS OF CHANNEL
R HYDRAULIC RADIUS OF FLOODPLAIN
S INVERT SLOPE

LEGEND

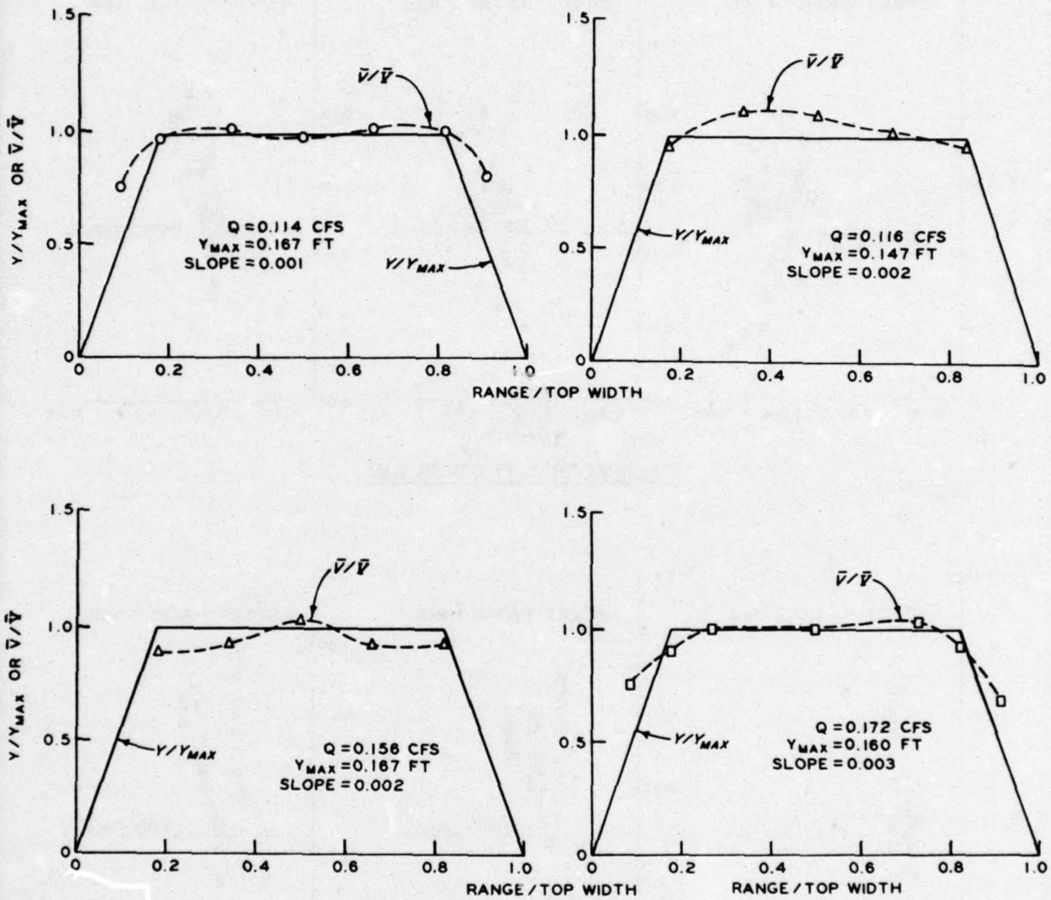
	SLOPE
O	0.001
Δ	0.002
□	0.003

PRISMATIC CHANNEL AND FLOODPLAIN

MANNING'S n VS DEPTH

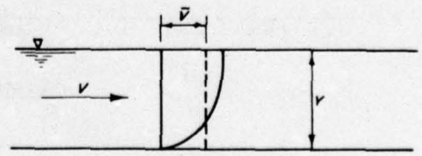
SEPARATE-CHANNELS METHOD

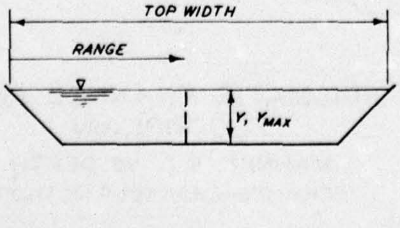
PLATE 11



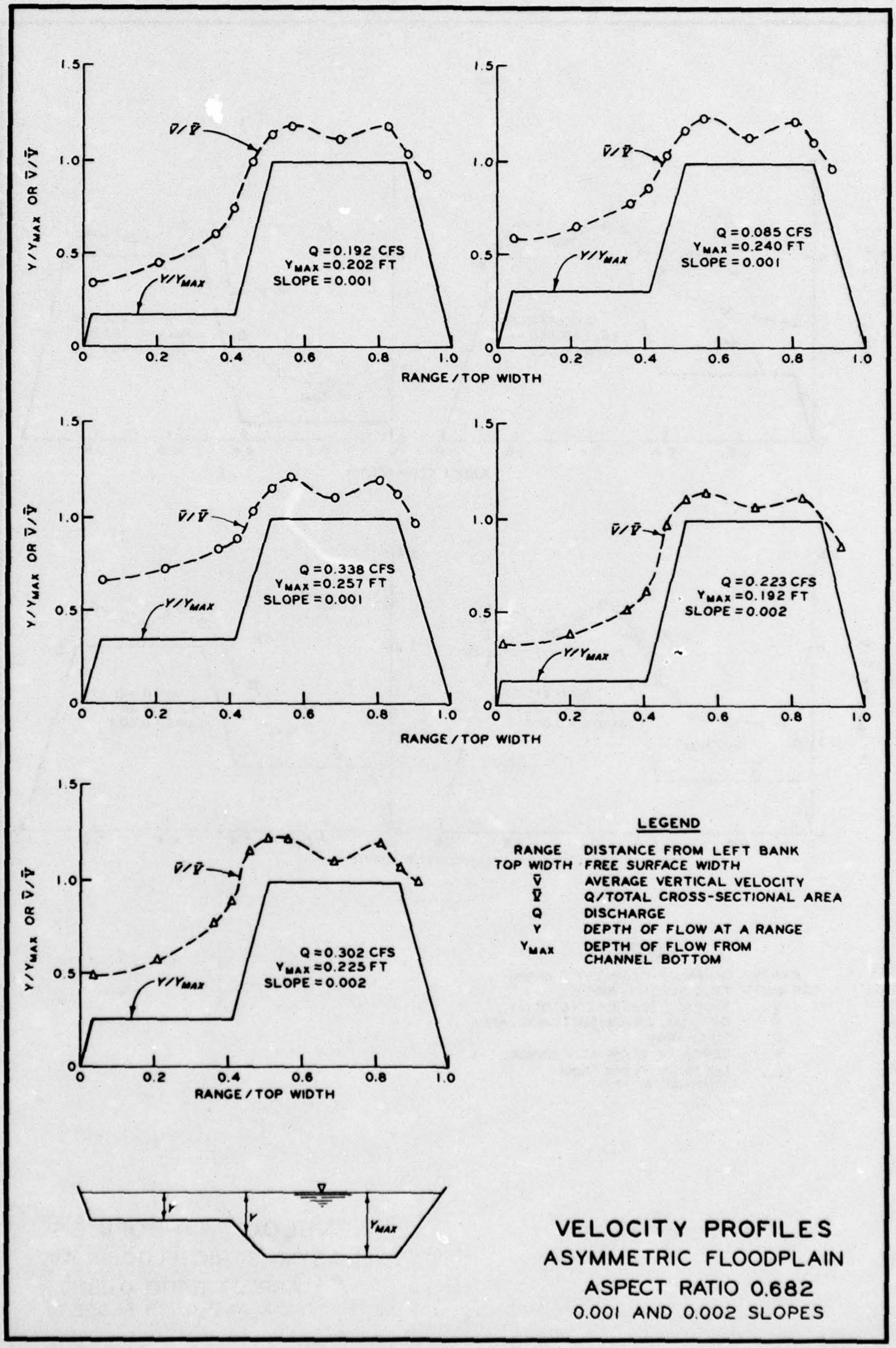
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM

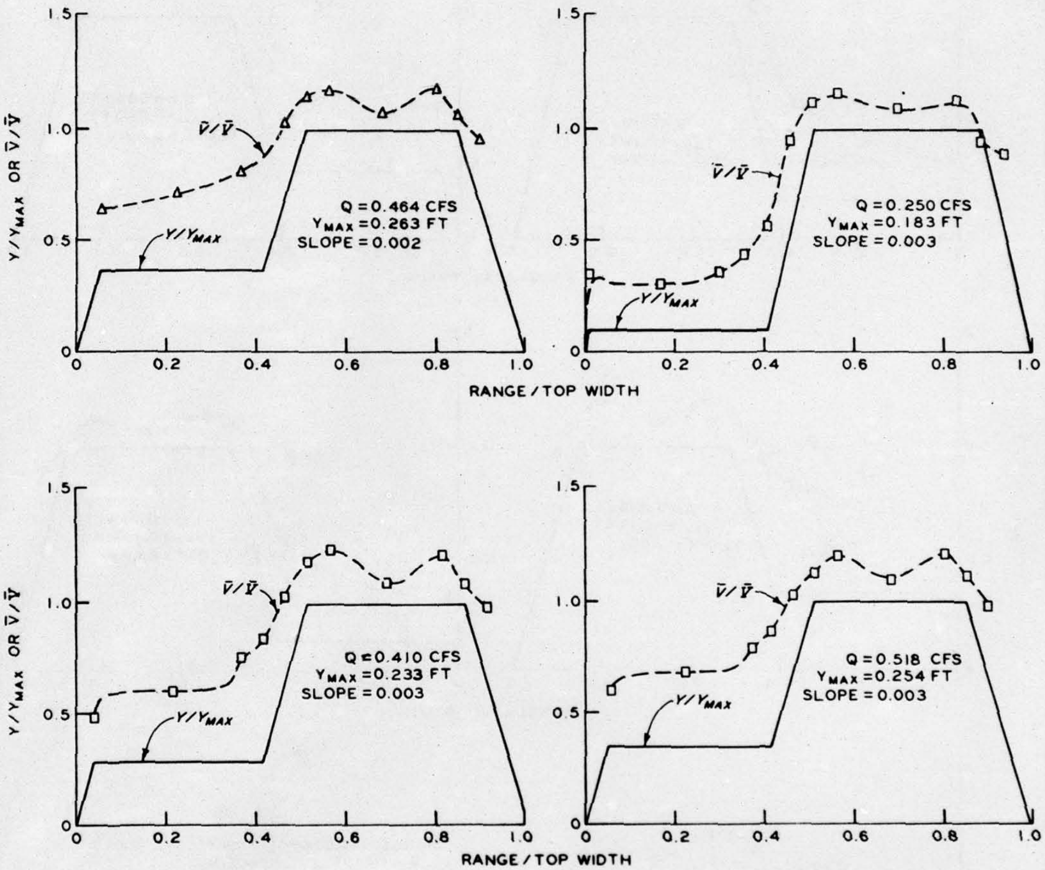




VELOCITY PROFILES
TRAPEZOIDAL CHANNEL

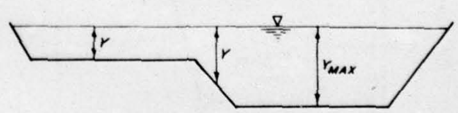


VELOCITY PROFILES
ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
0.001 AND 0.002 SLOPES

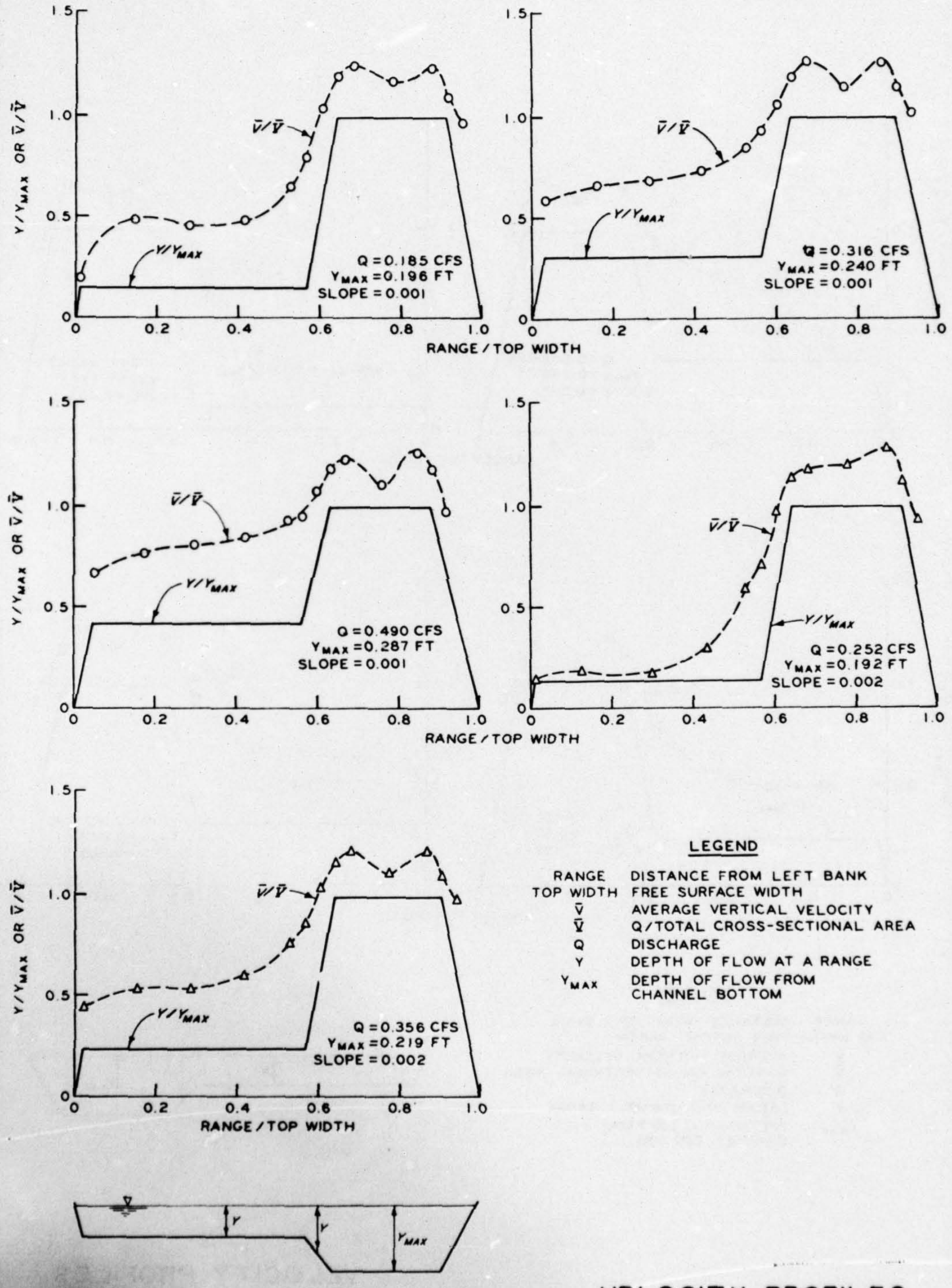


LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



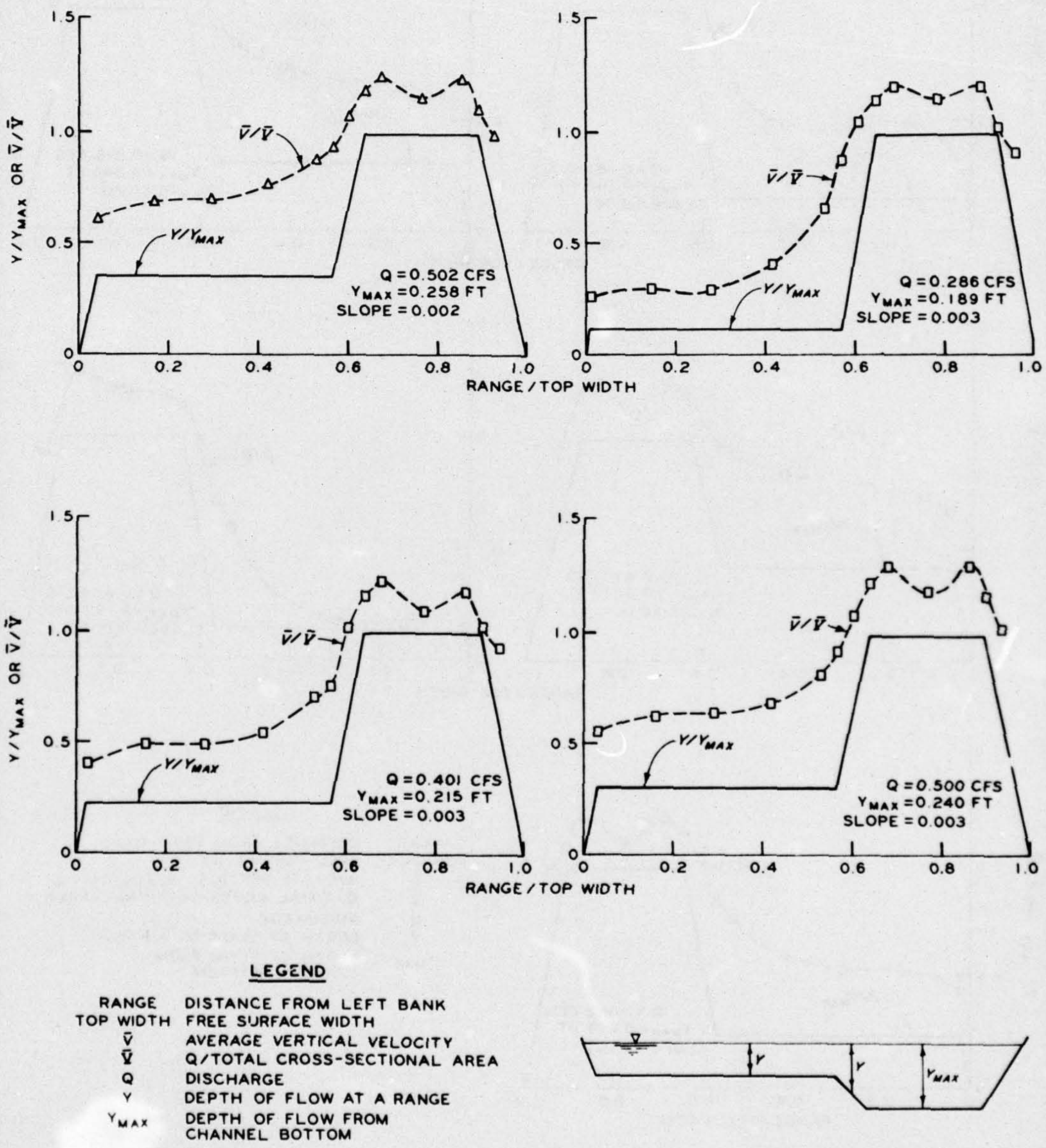
VELOCITY PROFILES
ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
0.002 AND 0.003 SLOPES



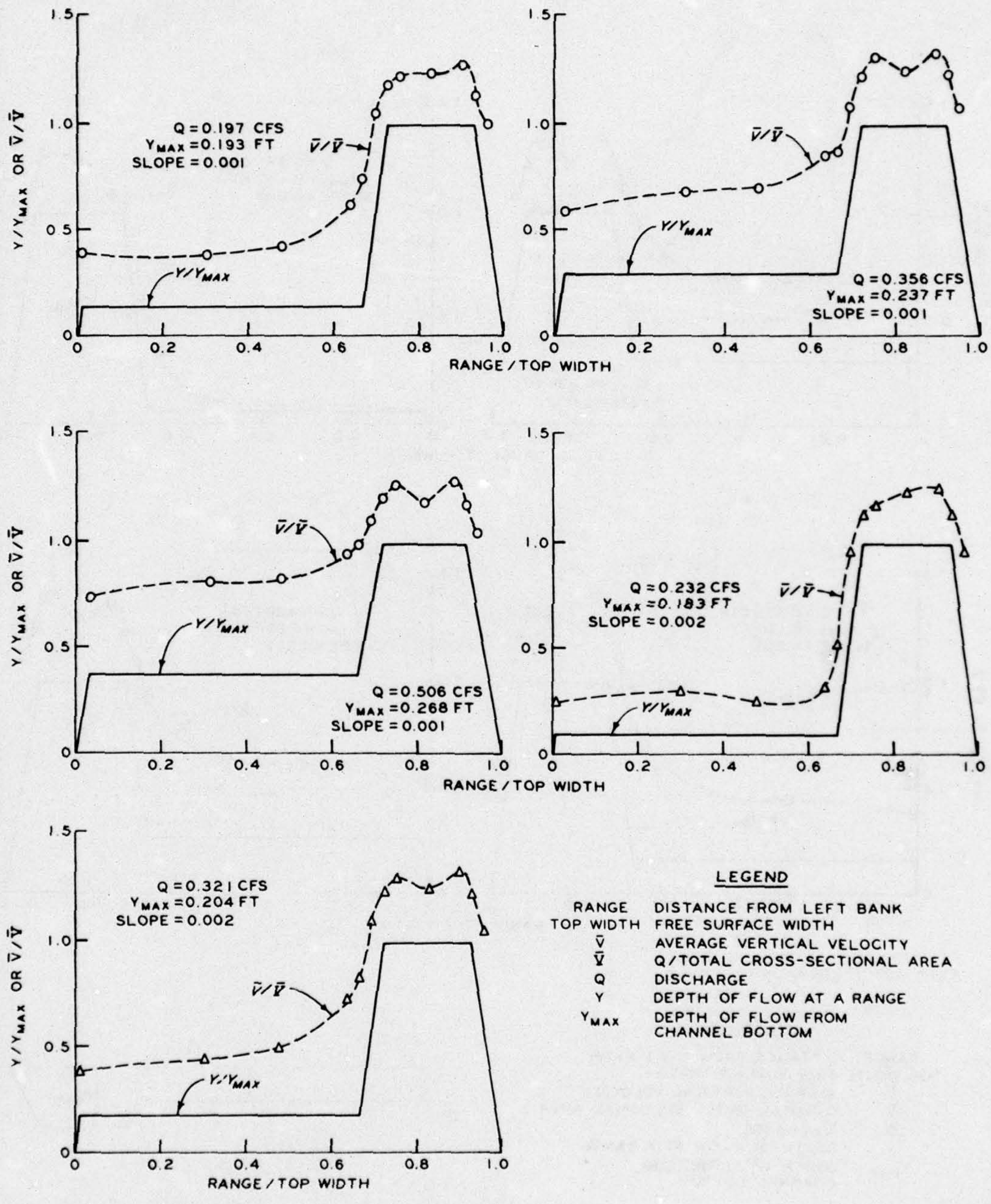
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM

VELOCITY PROFILES
ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
0.001 AND 0.002 SLOPES

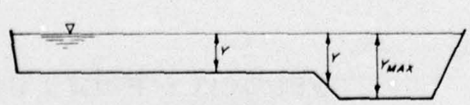


VELOCITY PROFILES
ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
0.002 AND 0.003 SLOPES



LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM

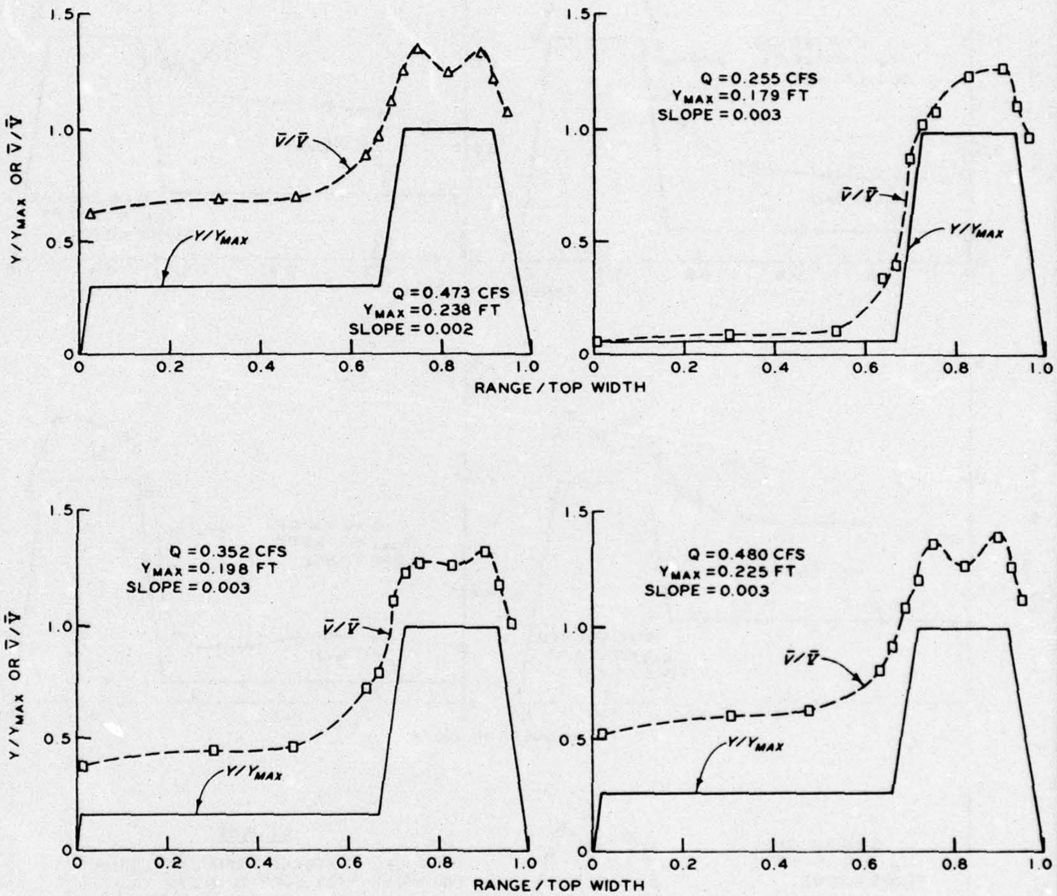


VELOCITY PROFILES

ASYMMETRIC FLOODPLAIN

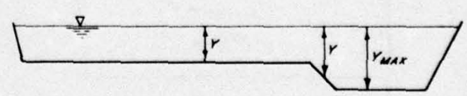
ASPECT RATIO 2.045

0.001 AND 0.002 SLOPES



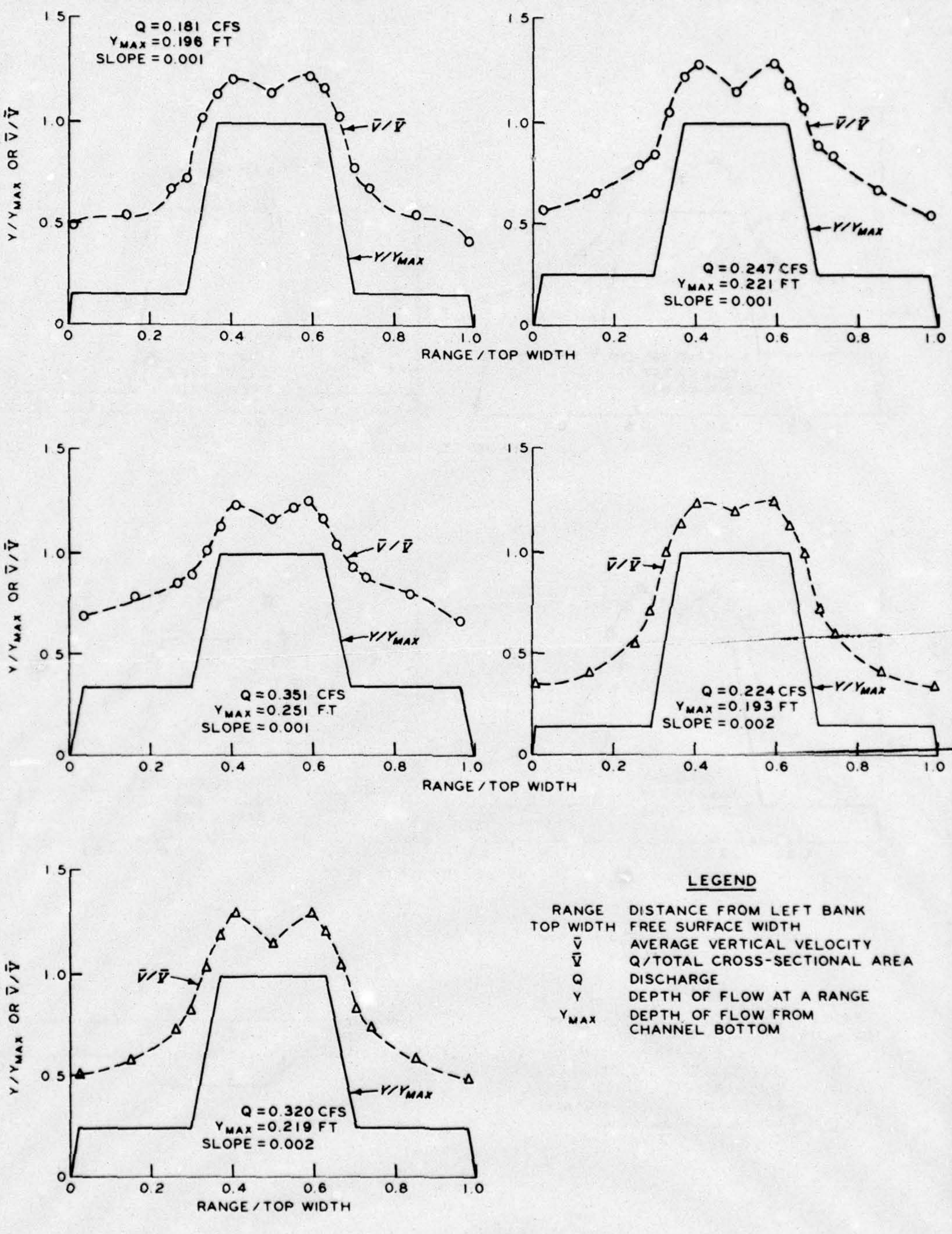
LEGEND

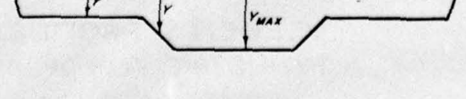
RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



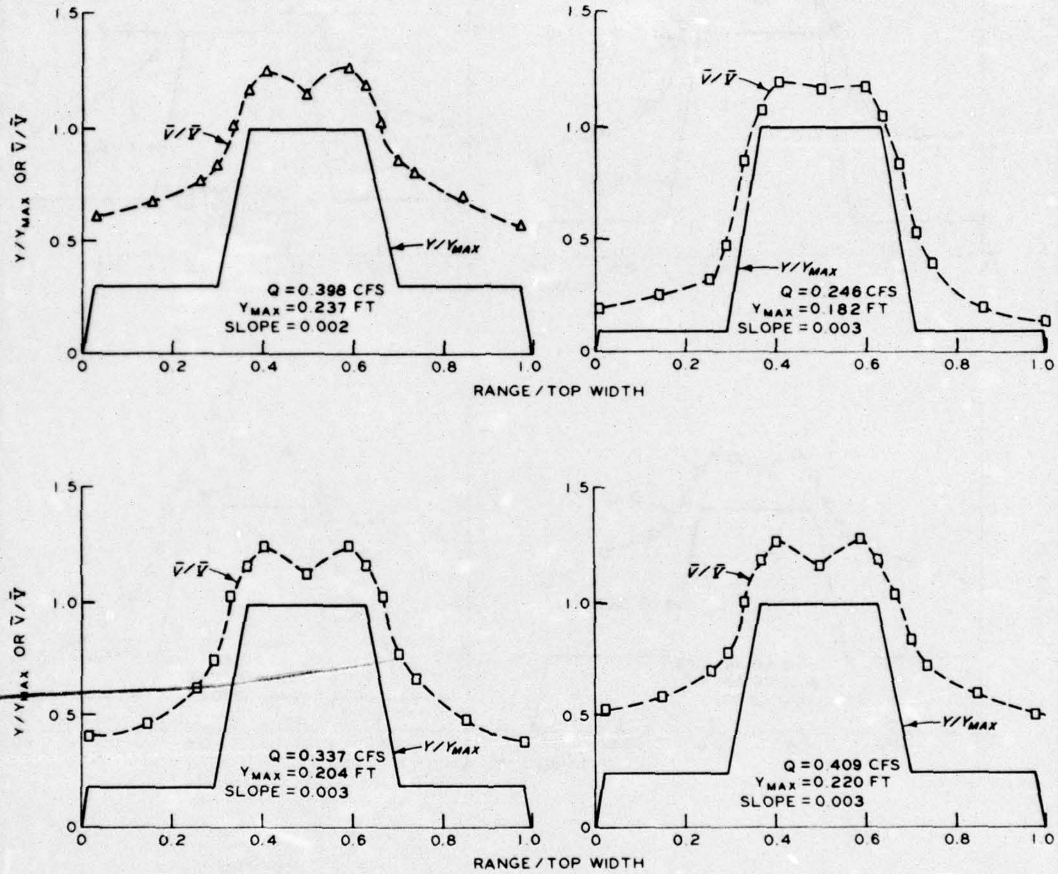
VELOCITY PROFILES
ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
0.002 AND 0.003 SLOPES

PLATE 18



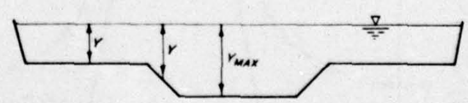


VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
0.001 AND 0.002 SLOPES



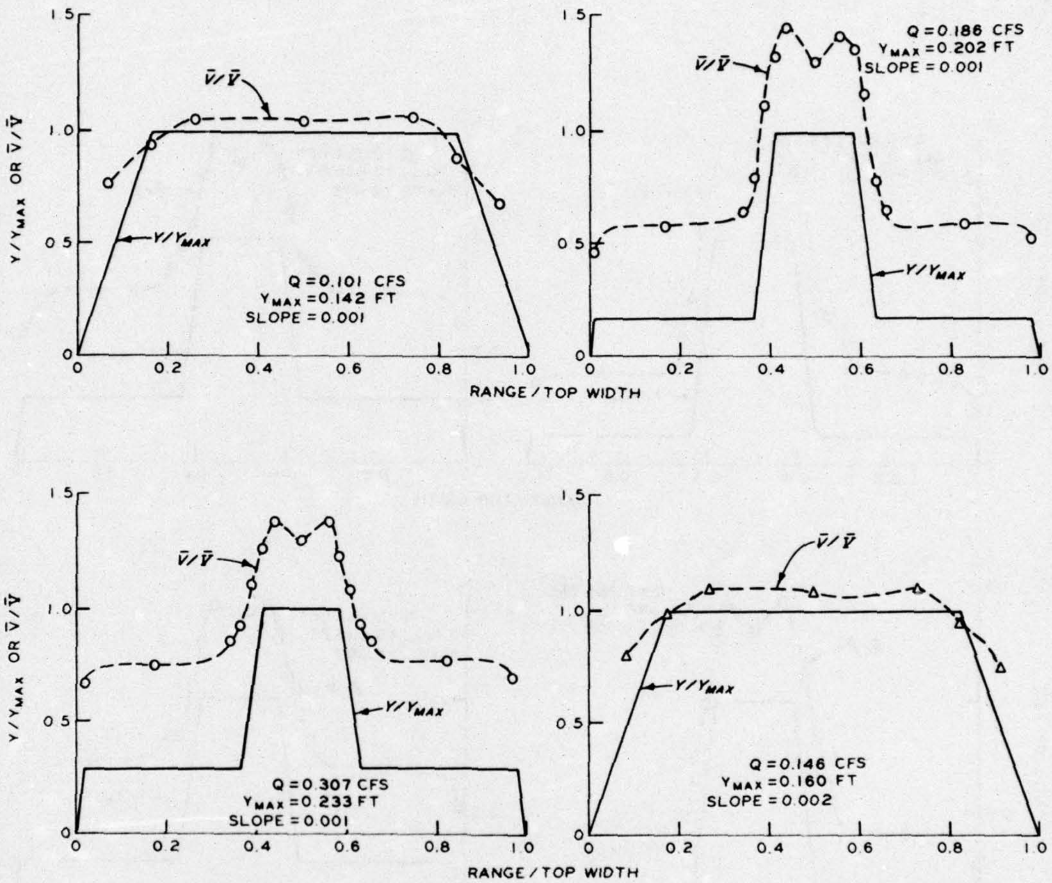
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



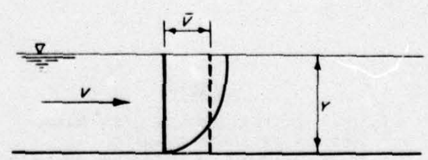
VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
0.002 AND 0.003 SLOPES

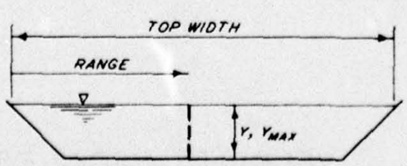
PLATE 20



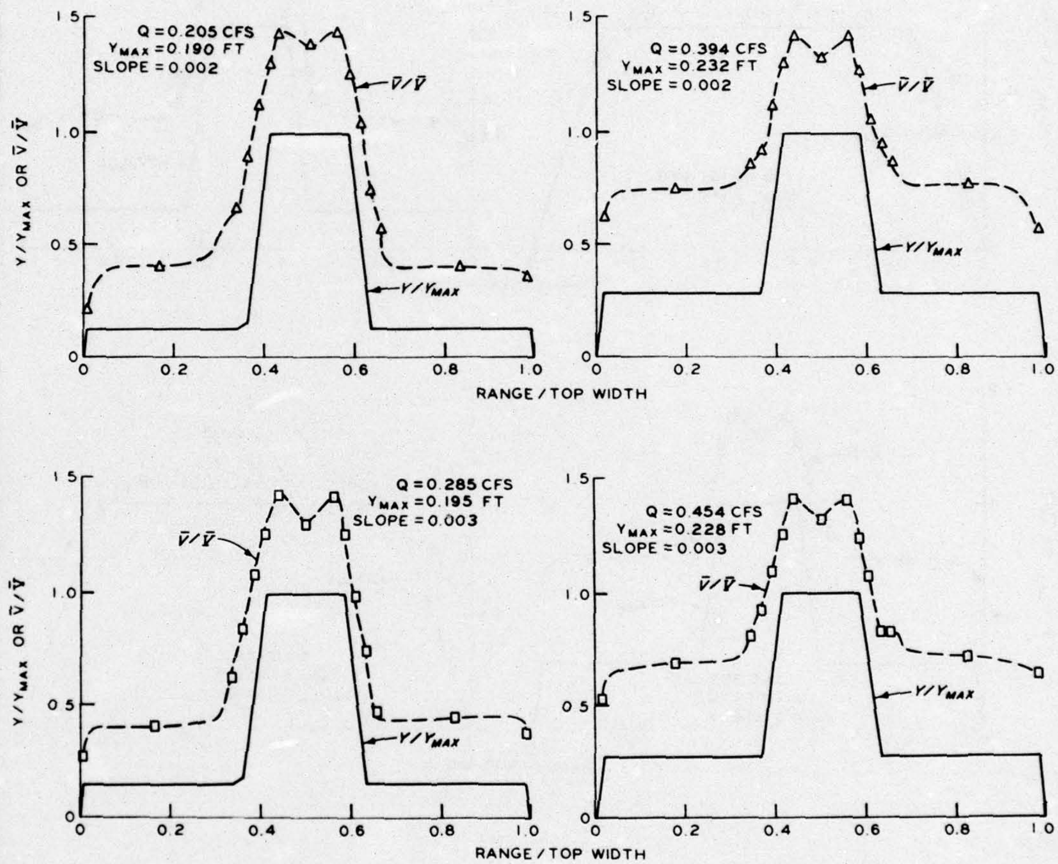
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{v}$	AVERAGE VERTICAL VELOCITY
$\bar{V}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



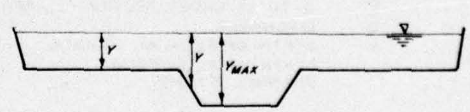


VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
0.001 AND 0.002 SLOPES



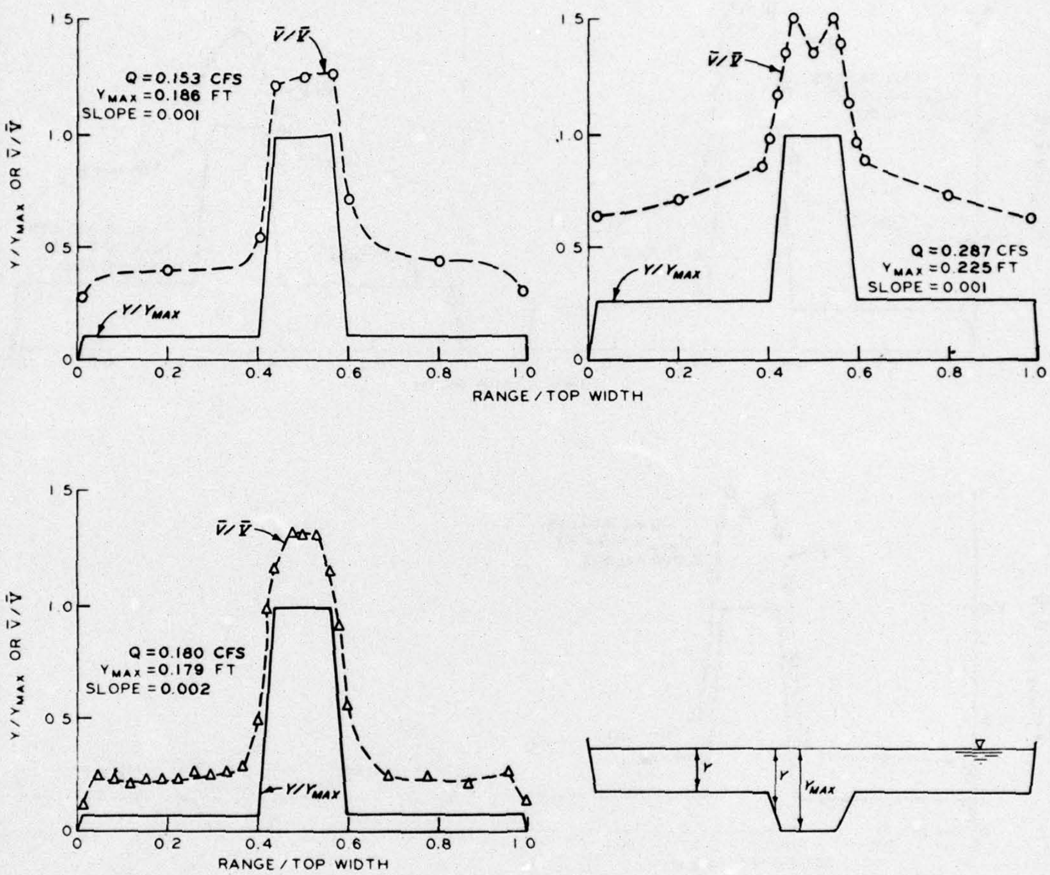
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
0.002 AND 0.003 SLOPES

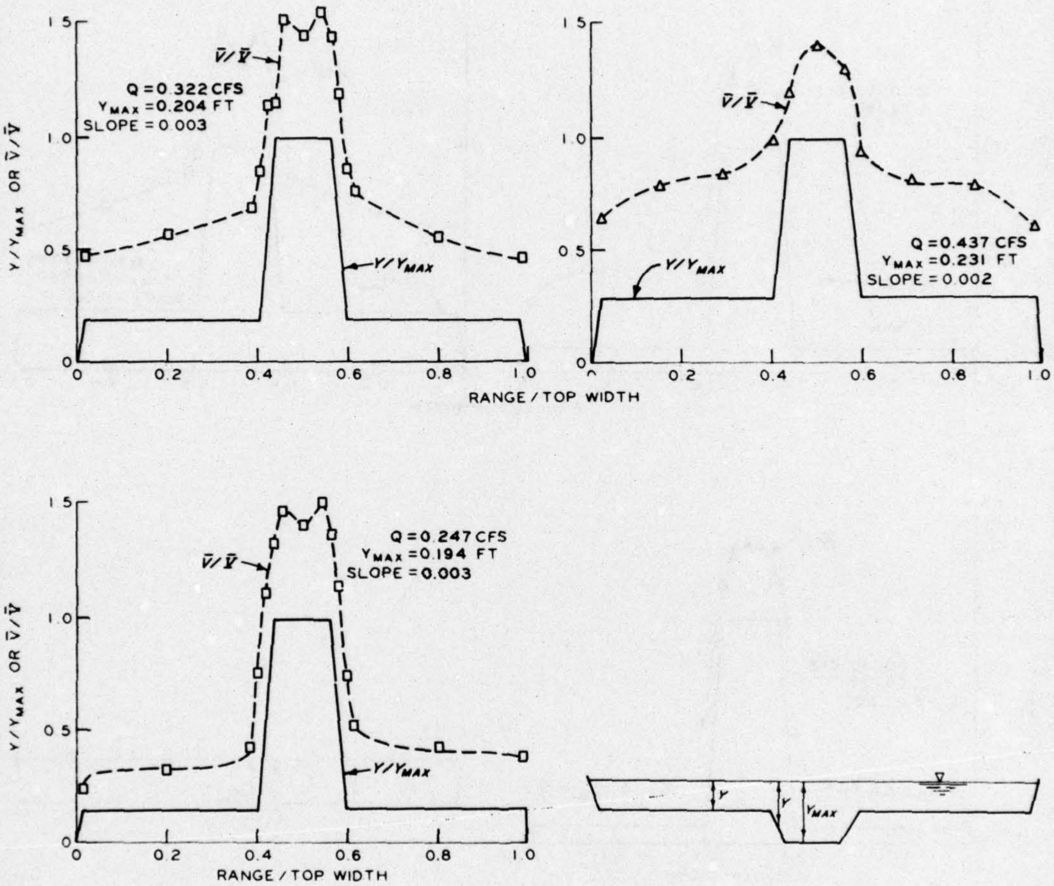
PLATE 22



LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM

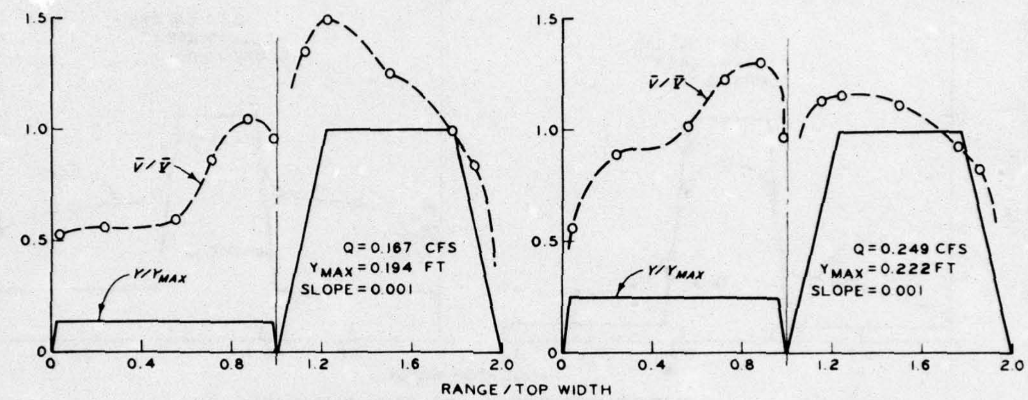
VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
0.001 AND 0.002 SLOPES



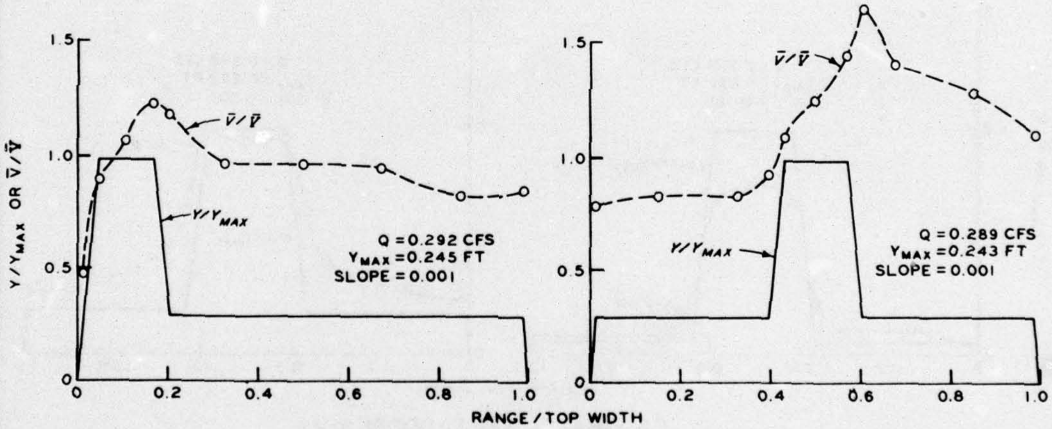
LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM

VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
0.002 AND 0.003 SLOPES



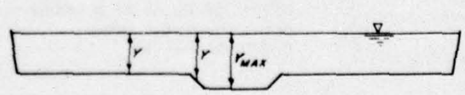
MEANDERING CHANNEL TWO 10-FT CROSSOVERS



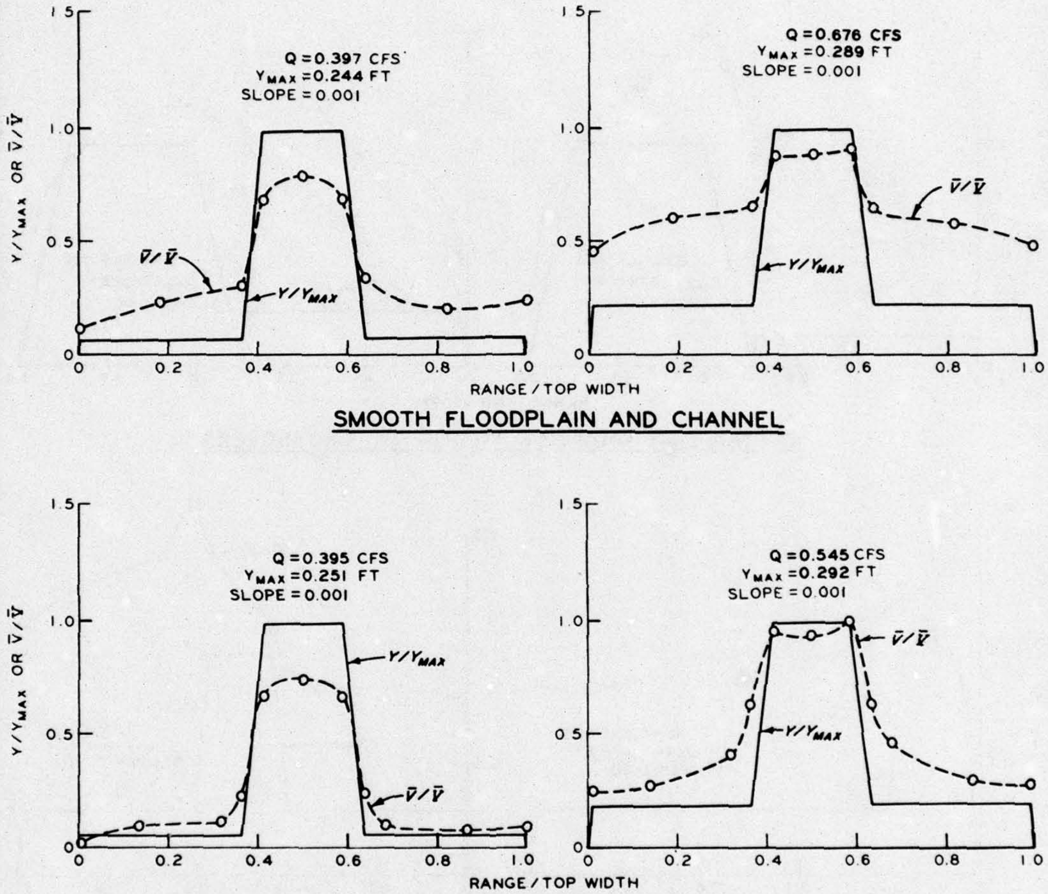
MEANDERING CHANNEL THREE 10-FT CROSSOVERS

LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



VELOCITY PROFILES
MEANDERING CHANNEL WITH CONSECUTIVE CROSSOVERS IN A PRISMATIC FLOODPLAIN

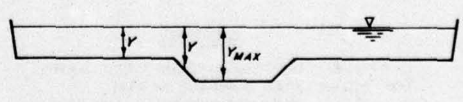


SMOOTH FLOODPLAIN AND CHANNEL

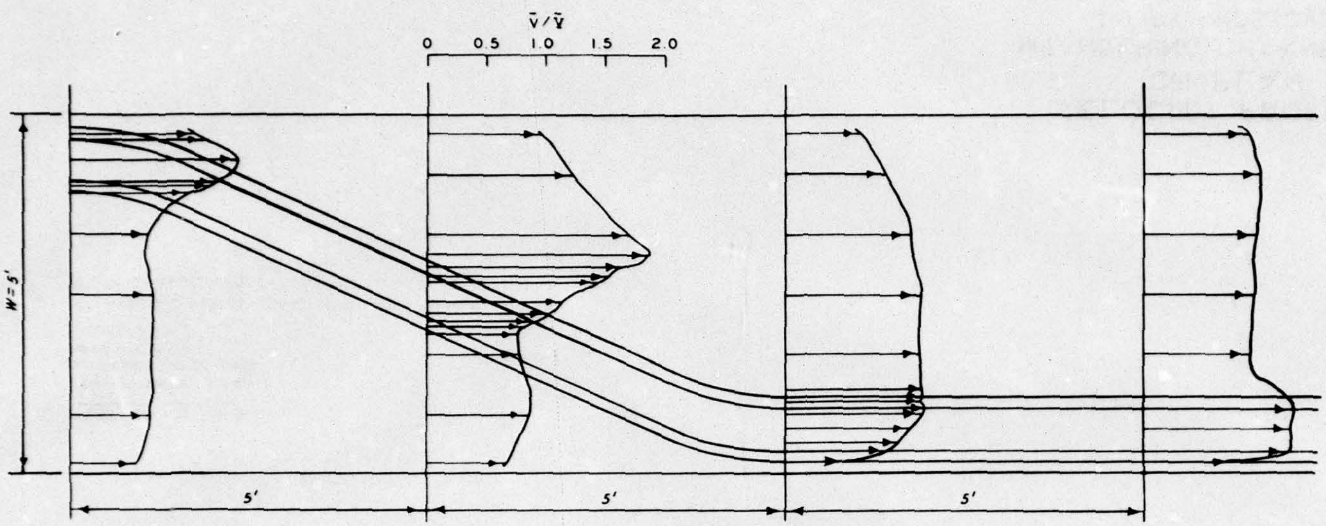
#8 GRAVEL ON FLOODPLAIN

LEGEND

RANGE	DISTANCE FROM LEFT BANK
TOP WIDTH	FREE SURFACE WIDTH
$\bar{V}$	AVERAGE VERTICAL VELOCITY
$\bar{\bar{V}}$	Q/TOTAL CROSS-SECTIONAL AREA
Q	DISCHARGE
Y	DEPTH OF FLOW AT A RANGE
Y_{MAX}	DEPTH OF FLOW FROM CHANNEL BOTTOM



VELOCITY PROFILES
SYMMETRIC FLOODPLAIN
LARGER SCALE CHANNEL
ASPECT RATIO 2.636



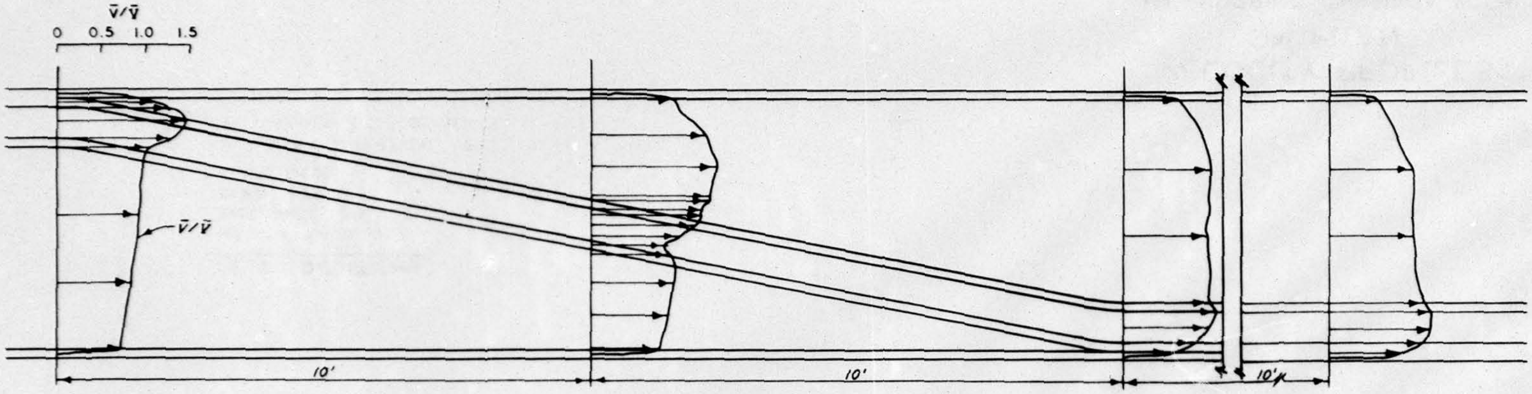
TEST CONDITIONS

ASPECT RATIO 4.091
DISCHARGE 0.25 CFS
DEPTH 0.21 FT
SLOPE 0.001

$\bar{V}$ AVERAGE VERTICAL VELOCITY AT A RANGE
$\bar{\bar{V}}$ DISCHARGE/CROSS-SECTIONAL AREA

VELOCITY PROFILES ON PLAN

MEANDERING CHANNEL WITH 10-FT CROSSOVER

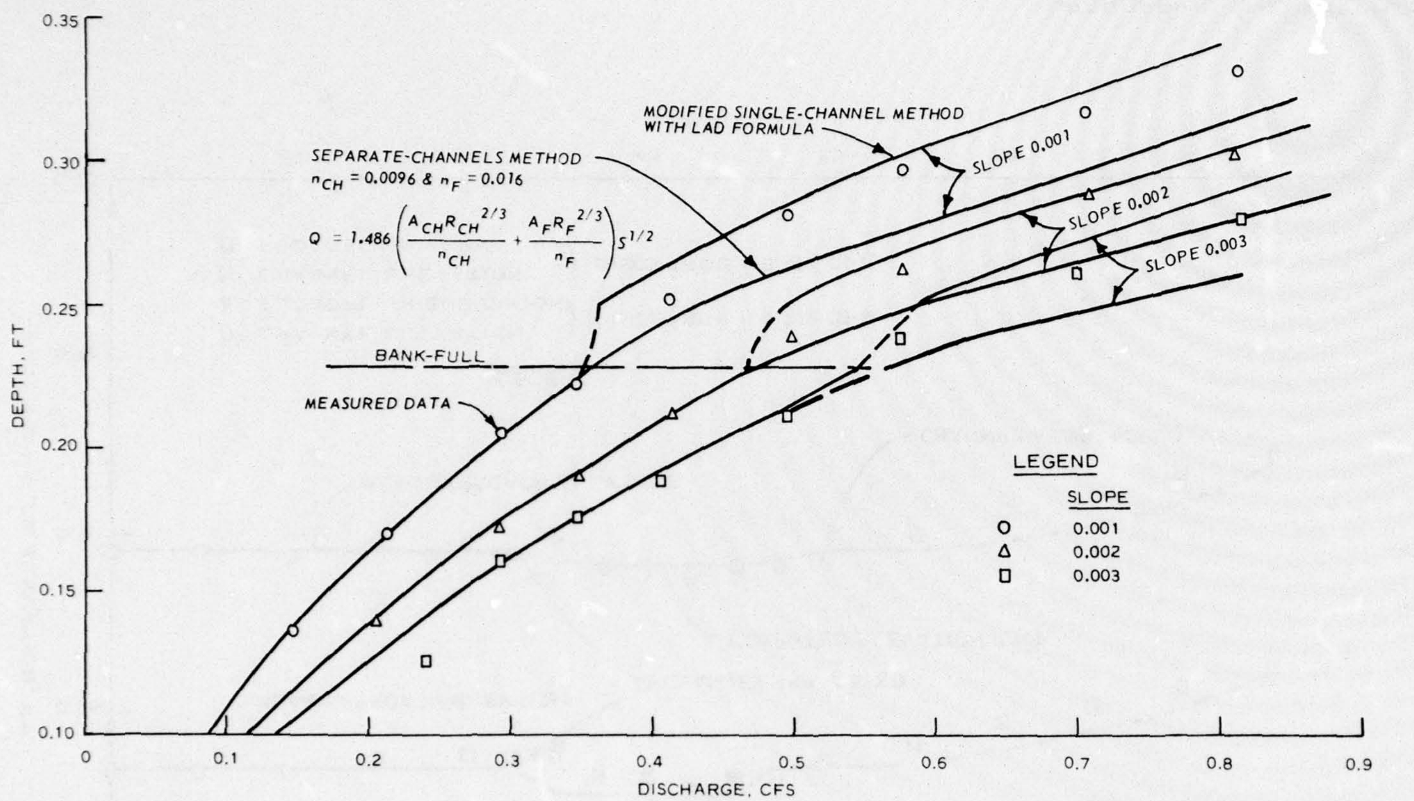


TEST CONDITIONS

ASPECT RATIO 4.090
DISCHARGE 0.50 CFS
DEPTH 0.25 FT
SLOPE 0.001

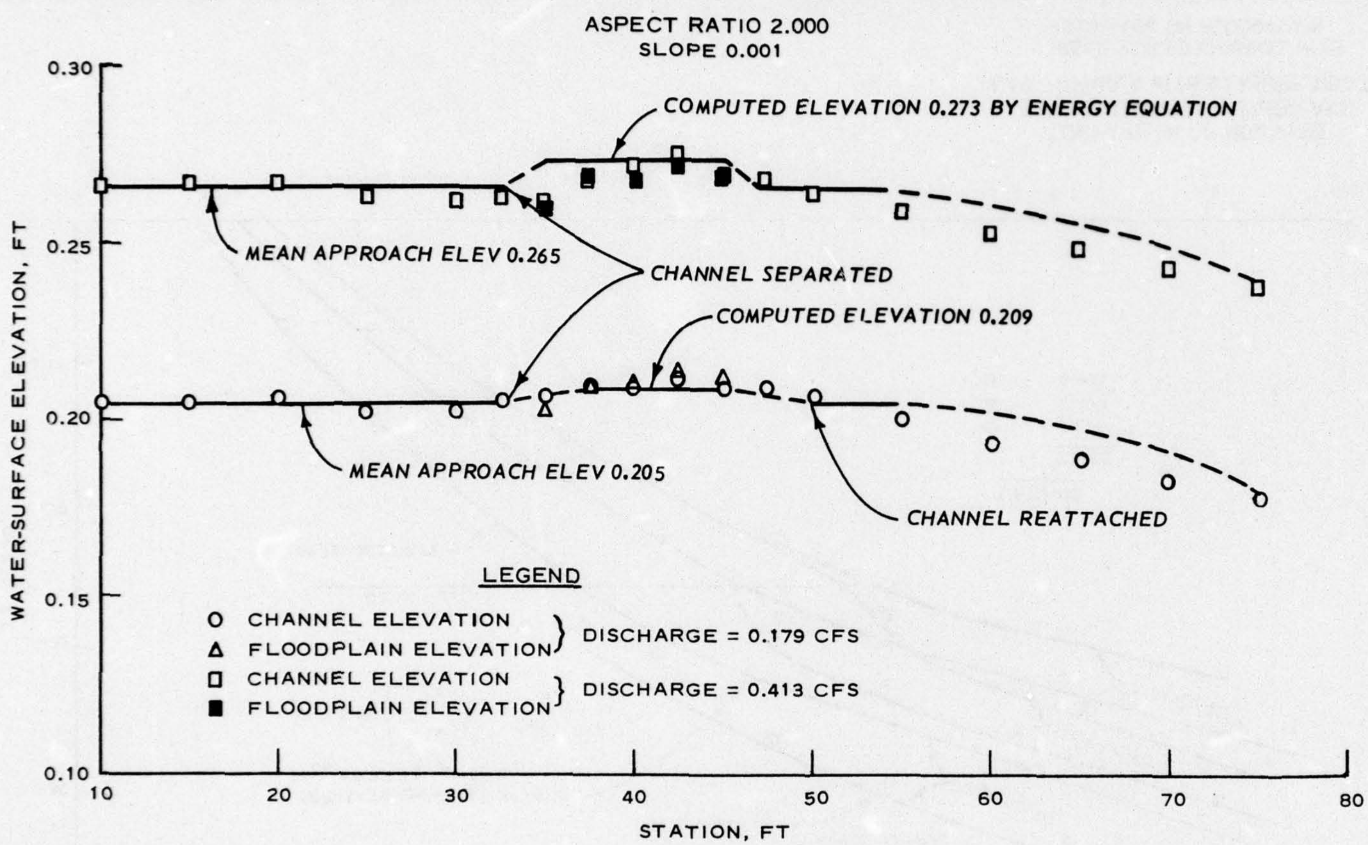
$\bar{v}$ AVERAGE VERTICAL VELOCITY AT A RANGE
$\bar{V}$ DISCHARGE/CROSS-SECTIONAL AREA

VELOCITY PROFILES
ON PLAN
MEANDERING CHANNEL WITH
20-FT CROSSOVER



COMPARISON OF MODIFIED
SINGLE-CHANNEL METHOD AND
LAD FORMULA WITH MEASURED DATA

LARGER SCALED CHANNEL WITH
#8 GRAVEL ON FLOODPLAIN



MEANDERING CHANNEL THAT SEPARATED FROM FLOODPLAIN LONGITUDINAL WATER-SURFACE PROFILES

APPENDIX A: STAGE-DISCHARGE DATA

Table A1

Symmetric Floodplain, Test 1

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* F
		Slope = 0.001 ft/ft		
0.060	0.118	0.013	76.3	0.044
0.079	0.134	0.012	82.2	0.038
0.102	0.156	0.012	83.4	0.037
0.125	0.169	0.005	176.1	0.008
0.144	0.182	0.007	116.2	0.019
0.161	0.189	0.009	103.1	0.024
0.177	0.190	0.008	109.9	0.021
0.204	0.198	0.009	101.4	0.025
0.079	0.135	0.012	81.3	0.039
0.118	0.166	0.012	87.3	0.034
0.189	0.198	0.010	93.9	0.029
0.230	0.209	0.011	88.0	0.033
0.253	0.214	0.011	87.2	0.034
0.290	0.222	0.011	85.6	0.035
0.354	0.234	0.012	85.1	0.036
0.388	0.240	0.012	85.0	0.036
0.291	0.221	0.011	87.5	0.034
0.228	0.210	0.011	85.4	0.035
0.207	0.203	0.010	90.8	0.031
0.179	0.194	0.009	99.0	0.026
0.161	0.189	0.009	103.1	0.024
0.143	0.182	0.008	115.4	0.019
0.125	0.171	0.005	159.3	0.010
0.102	0.153	0.012	86.0	0.035
0.069	0.125	0.013	80.2	0.040
0.051	0.104	0.012	79.1	0.041
		Slope = 0.002 ft/ft		
0.024	0.052	0.012	76.4	0.044
0.053	0.097	0.015	64.7	0.061
0.082	0.122	0.014	70.0	0.053
0.096	0.111	0.010	95.0	0.029
0.109	0.144	0.014	71.6	0.050

(Continued)

* Computed by single-channel method.

(Sheet 1 of 3)

Table A1 (Continued)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.117	0.150	0.014	72.0	0.050
0.134	0.161	0.014	73.6	0.048
0.145	0.166	0.014	75.8	0.045
0.154	0.167	0.013	79.8	0.040
0.169	0.177	0.007	116.7	0.019
0.196	0.186	0.009	97.6	0.027
0.172	0.181	0.009	101.8	0.025
0.180	0.182	0.008	102.7	0.024
0.209	0.189	0.009	94.6	0.029
0.212	0.194	0.011	82.9	0.037
0.300	0.208	0.011	83.0	0.037
0.345	0.216	0.012	80.7	0.040
0.400	0.226	0.013	77.7	0.043
0.470	0.236	0.013	77.4	0.043
0.200	0.197	0.013	72.1	0.050
0.210	0.187	0.009	101.2	0.025
0.156	0.176	0.008	112.3	0.020
0.102	0.134	0.013	75.1	0.046
0.043	0.087	0.015	62.2	0.067
0.443	0.233	0.013	76.5	0.044
0.535	0.242	0.012	80.4	0.040
0.180	0.179	0.007	114.8	0.020
0.334	0.214	0.012	81.4	0.039
0.205	0.187	0.009	98.8	0.026
0.250	0.197	0.010	90.2	0.032
0.437	0.231	0.013	78.0	0.042
		Slope = 0.003 ft/ft		
0.073	0.102	0.014	67.3	0.057
0.102	0.124	0.014	69.3	0.054
0.126	0.138	0.014	72.3	0.049
0.146	0.149	0.014	74.1	0.047
0.178	0.167	0.014	75.3	0.045
0.204	0.179	0.008	106.3	0.023
0.229	0.185	0.009	96.2	0.028
0.272	0.194	0.010	86.9	0.034
0.340	0.206	0.012	80.3	0.040
0.320	0.203	0.011	81.1	0.039

(Continued)

(Sheet 2 of 3)

Table A1 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft (Continued)		
0.290	0.196	0.010	87.7	0.033
0.250	0.189	0.010	92.4	0.030
0.229	0.184	0.009	99.5	0.026
0.206	0.179	0.008	107.3	0.022
0.179	0.167	0.014	75.7	0.045
0.161	0.159	0.014	73.7	0.047

(Sheet 3 of 3)

Table A2

Symmetric Floodplain, Test 2

Aspect Ratio = 2.636

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.071	0.120	0.011	88.0	0.033
0.101	0.146	0.011	91.8	0.031
0.125	0.164	0.011	94.3	0.029
0.144	0.177	0.007	135.1	0.014
0.160	0.189	0.009	107.3	0.022
0.179	0.196	0.009	101.7	0.025
0.205	0.206	0.010	94.4	0.029
0.250	0.219	0.011	91.1	0.031
0.307	0.232	0.011	91.3	0.031
0.384	0.248	0.011	91.8	0.031
0.503	0.270	0.011	93.1	0.030
0.456	0.262	0.011	92.2	0.030
0.353	0.243	0.011	90.0	0.032
0.270	0.221	0.010	95.1	0.028
0.229	0.213	0.010	92.5	0.030
0.192	0.201	0.010	97.9	0.027
0.169	0.192	0.009	105.3	0.023
0.153	0.183	0.008	120.2	0.018
0.134	0.171	0.006	153.7	0.011
0.114	0.157	0.011	92.2	0.030
		Slope = 0.002 ft/ft		
0.070	0.101	0.012	80.3	0.040
0.101	0.128	0.013	79.9	0.040
0.128	0.147	0.013	81.3	0.039
0.145	0.159	0.013	81.3	0.039
0.161	0.168	0.006	146.0	0.012
0.177	0.174	0.007	129.4	0.015
0.204	0.184	0.008	110.3	0.021
0.250	0.198	0.010	96.1	0.028
0.320	0.214	0.011	89.8	0.032
0.435	0.236	0.012	86.3	0.035

(Continued)

* Computed by single-channel method.

Table A2 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
Slope = 0.002 ft/ft (Continued)				
0.543	0.253	0.012	86.3	0.035
0.488	0.245	0.012	85.7	0.035
0.383	0.227	0.011	86.8	0.034
0.289	0.208	0.011	90.6	0.031
0.228	0.191	0.009	102.9	0.024
0.191	0.181	0.008	112.3	0.020
0.170	0.170	0.006	143.0	0.013
0.154	0.160	0.012	85.5	0.035
0.136	0.149	0.012	84.6	0.036
0.113	0.134	0.012	83.2	0.037
0.051	0.083	0.012	79.3	0.041
Slope = 0.003 ft/ft				
0.054	0.079	0.013	74.0	0.047
0.101	0.115	0.013	77.2	0.043
0.144	0.142	0.013	78.9	0.041
0.163	0.151	0.013	81.0	0.039
0.176	0.158	0.013	81.4	0.039
0.192	0.166	0.013	82.0	0.038
0.204	0.172	0.007	130.4	0.015
0.228	0.181	0.008	109.5	0.021
0.269	0.193	0.010	94.5	0.029
0.340	0.207	0.011	88.7	0.033
0.458	0.230	0.012	81.0	0.039
0.512	0.236	0.012	83.0	0.037
0.579	0.243	0.012	85.3	0.035
0.434	0.224	0.012	84.1	0.036
0.383	0.211	0.010	92.7	0.030
0.303	0.200	0.010	91.1	0.031
0.250	0.184	0.008	110.3	0.021
0.248	0.187	0.009	101.0	0.025
0.194	0.168	0.006	143.6	0.012
0.123	0.132	0.013	75.7	0.045

Table A3

Symmetric Floodplain, Test 3

Aspect Ratio = 1.364

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.072	0.112	0.010	99.4	0.026
0.102	0.144	0.011	94.7	0.029
0.126	0.159	0.010	99.9	0.026
0.146	0.172	0.007	140.4	0.013
0.178	0.194	0.009	109.9	0.021
0.206	0.208	0.010	101.3	0.025
0.252	0.223	0.010	100.4	0.026
0.324	9.244	0.010	100.2	0.026
0.408	0.268	0.011	98.6	0.027
0.501	0.289	0.011	100.4	0.026
0.458	0.280	0.011	99.2	0.026
0.365	0.255	0.010	100.3	0.026
0.286	0.233	0.010	100.4	0.026
0.228	0.215	0.010	101.3	0.025
0.176	0.194	0.009	108.6	0.022
0.162	0.187	0.008	113.6	0.020
0.132	0.165	0.011	98.6	0.027
0.116	0.154	0.011	96.8	0.028
		Slope = 0.002 ft/ft		
0.102	0.121	0.011	88.2	0.033
0.151	0.152	0.011	91.0	0.031
0.164	0.158	0.011	92.9	0.030
0.178	0.166	0.011	93.1	0.030
0.192	0.175	0.008	121.9	0.017
0.207	0.182	0.008	113.2	0.020
0.230	0.190	0.009	107.8	0.022
0.272	0.204	0.010	100.6	0.025
0.341	0.222	0.010	97.3	0.027
0.454	0.251	0.011	92.0	0.030
0.454	0.250	0.011	93.0	0.030
0.541	0.266	0.011	94.2	0.029

(Continued)

* Computed by single-channel method.

Table A3 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.490	0.256	0.011	94.2	0.029
0.396	0.235	0.011	96.0	0.028
0.306	0.212	0.010	100.3	0.026
0.248	0.196	0.009	104.6	0.024
0.216	0.185	0.009	111.3	0.021
0.198	0.178	0.008	117.7	0.019
0.185	0.170	0.007	132.0	0.015
0.152	0.152	0.011	91.6	0.031
		Slope = 0.003 ft/ft		
0.072	0.087	0.011	85.0	0.036
0.123	0.123	0.012	84.6	0.036
0.180	0.154	0.012	86.7	0.034
0.192	0.159	0.012	87.9	0.033
0.206	0.165	0.012	88.8	0.033
0.230	0.176	0.008	116.6	0.019
0.273	0.191	0.009	102.6	0.024
0.354	0.210	0.010	97.6	0.027
0.457	0.233	0.011	92.7	0.030
0.540	0.249	0.011	91.3	0.031
0.501	0.242	0.011	91.4	0.031
0.410	0.224	0.011	93.1	0.030
0.312	0.202	0.010	97.3	0.027
0.252	0.183	0.009	110.3	0.021
0.216	0.171	0.008	122.8	0.017
0.142	0.133	0.012	86.4	0.035
0.196	0.161	0.012	87.9	0.033

Table A4

Trapezoidal Channel, Test 4

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
Slope = 0.001 ft/ft				
0.323	0.272	0.010	186.1	0.023
0.308	0.265	0.010	105.8	0.023
0.288	0.257	0.011	104.1	0.024
0.271	0.248	0.011	104.0	0.024
0.252	0.237	0.010	104.4	0.024
0.228	0.228	0.011	100.7	0.025
0.205	0.215	0.011	99.8	0.026
0.177	0.197	0.011	99.5	0.026
0.144	0.176	0.011	97.3	0.027
0.102	0.145	0.011	93.7	0.029
Slope = 0.002 ft/ft				
0.407	0.274	0.012	93.4	0.030
0.396	0.271	0.012	92.6	0.030
0.384	0.267	0.012	92.1	0.030
0.366	0.260	0.012	91.8	0.031
0.353	0.254	0.012	92.1	0.030
0.323	0.244	0.012	90.1	0.032
0.289	0.228	0.012	90.3	0.032
0.248	0.210	0.012	88.8	0.033
0.202	0.187	0.012	87.4	0.034
0.143	0.153	0.012	85.2	0.035
Slope = 0.003 ft/ft				
0.422	0.257	0.012	88.1	0.033
0.401	0.250	0.013	87.7	0.034
0.382	0.244	0.013	87.0	0.034
0.361	0.236	0.013	86.9	0.034
0.337	0.228	0.013	85.9	0.035
0.315	0.218	0.012	86.5	0.034
0.288	0.207	0.012	86.2	0.035
0.250	0.191	0.012	85.3	0.035
0.203	0.170	0.012	83.7	0.037
0.143	0.138	0.012	82.0	0.038

* Computed by single-channel method.

Table A5

Asymmetric Floodplain, Test 5

Aspect Ratio = 0.682

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.489	0.300	0.010	108.1	0.022
0.468	0.204	0.010	108.1	0.022
0.432	0.285	0.010	106.7	0.023
0.409	0.278	0.010	106.6	0.023
0.382	0.270	0.010	106.2	0.023
0.354	0.261	0.010	106.1	0.023
0.323	0.251	0.010	105.8	0.023
0.289	0.239	0.010	105.9	0.023
0.250	0.225	0.010	105.6	0.023
0.217	0.211	0.010	107.3	0.022
0.192	0.199	0.009	110.0	0.021
0.178	0.192	0.009	112.0	0.021
0.162	0.182	0.008	117.7	0.019
0.145	0.171	0.008	125.5	0.016
0.125	0.158	0.010	100.1	0.026
0.100	0.139	0.010	98.2	0.027
0.072	0.114	0.010	96.7	0.028
0.054	0.093	0.010	99.6	0.026
		Slope = 0.002 ft/ft		
0.072	0.097	0.011	88.0	0.033
0.102	0.115	0.010	95.5	0.028
0.144	0.146	0.011	92.5	0.030
0.169	0.162	0.011	91.9	0.030
0.190	0.174	0.009	110.7	0.021
0.205	0.181	0.009	106.9	0.023
0.219	0.187	0.010	104.5	0.024
0.228	0.191	0.010	102.8	0.024
0.252	0.201	0.010	99.5	0.026
0.288	0.213	0.010	98.3	0.027

(Continued)

* Computed by single-channel method.

Table A5 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.323	0.223	0.011	98.6	0.026
0.367	0.236	0.011	97.9	0.027
0.409	0.248	0.011	97.3	0.027
0.457	0.261	0.011	96.9	0.027
0.503	0.273	0.011	96.5	0.028
		Slope = 0.003 ft/ft		
0.072	0.089	0.012	82.1	0.038
0.101	0.111	0.012	81.6	0.039
0.145	0.134	0.012	87.1	0.034
0.191	0.157	0.012	89.2	0.032
0.215	0.167	0.011	90.9	0.031
0.229	0.174	0.009	108.9	0.022
0.250	0.182	0.009	104.9	0.023
0.270	0.188	0.010	103.7	0.024
0.307	0.200	0.010	100.3	0.026
0.339	0.209	0.010	99.1	0.026
0.382	0.222	0.011	96.3	0.028
0.421	0.232	0.011	95.5	0.028
0.468	0.245	0.011	93.5	0.029
0.510	0.254	0.011	93.8	0.029
0.556	0.264	0.011	93.8	0.029

Table A6

Asymmetric Floodplain, Test 6

Aspect Ratio = 1.318

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.074	0.119	0.011	92.9	0.030
0.127	0.160	0.010	99.7	0.026
0.217	0.206	0.009	110.4	0.021
0.282	0.226	0.009	108.7	0.022
0.330	0.242	0.010	105.2	0.023
0.374	0.254	0.010	104.8	0.023
0.414	0.264	0.010	105.0	0.023
0.453	0.274	0.010	104.6	0.024
0.484	0.280	0.010	105.9	0.023
0.502	0.284	0.010	106.1	0.023
0.469	0.277	0.010	105.4	0.023
0.433	0.268	0.010	105.7	0.023
0.394	0.258	0.010	106.0	0.023
0.351	0.248	0.010	104.7	0.023
0.306	0.235	0.010	105.7	0.023
0.248	0.217	0.009	107.6	0.022
0.179	0.190	0.008	118.6	0.018
0.100	0.138	0.010	99.4	0.026
		Slope = 0.002 ft/ft		
0.101	0.120	0.011	88.5	0.033
0.170	0.162	0.011	92.5	0.030
0.253	0.193	0.009	112.4	0.020
0.306	0.210	0.010	103.7	0.024
0.356	0.223	0.010	100.8	0.025
0.395	0.231	0.010	101.2	0.025
0.434	0.241	0.010	98.9	0.026
0.466	0.248	0.011	98.3	0.027
0.502	0.257	0.011	96.4	0.028
0.482	0.251	0.011	98.5	0.027

(Continued)

* Computed by single-channel method.

Table A6 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.448	0.243	0.010	99.8	0.026
0.412	0.236	0.010	99.4	0.026
0.373	0.227	0.010	100.4	0.026
0.329	0.216	0.010	102.4	0.025
0.272	0.200	0.009	107.4	0.022
0.215	0.181	0.008	119.6	0.018
0.144	0.145	0.011	93.5	0.029
		Slope = 0.003 ft/ft		
0.098	0.107	0.012	83.9	0.037
0.204	0.162	0.011	90.6	0.031
0.270	0.185	0.008	113.4	0.020
0.322	0.200	0.009	103.9	0.024
0.368	0.213	0.010	97.5	0.027
0.407	0.222	0.011	95.4	0.028
0.445	0.230	0.011	94.2	0.029
0.478	0.236	0.011	94.2	0.029
0.510	0.242	0.011	93.8	0.029
0.494	0.240	0.011	93.0	0.030
0.459	0.232	0.011	94.8	0.029
0.426	0.225	0.011	96.0	0.028
0.387	0.216	0.010	98.3	0.027
0.345	0.206	0.010	101.3	0.025
0.295	0.192	0.009	108.9	0.022
0.235	0.175	0.008	121.2	0.018
0.161	0.144	0.012	86.3	0.035

Table A7

Asymmetric Floodplain, Test 7

Aspect Ratio = 2.045

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.081	0.116	0.009	105.8	0.023
0.161	0.177	0.006	146.3	0.012
0.251	0.209	0.008	115.0	0.019
0.322	0.229	0.009	108.2	0.022
0.383	0.244	0.010	105.7	0.023
0.435	0.255	0.010	105.4	0.023
0.482	0.264	0.010	105.8	0.023
0.505	0.268	0.010	106.3	0.023
0.457	0.259	0.010	105.9	0.023
0.408	0.249	0.010	106.0	0.023
0.354	0.237	0.010	106.7	0.023
0.288	0.219	0.009	112.1	0.021
0.214	0.197	0.008	122.4	0.017
0.120	0.148	0.010	106.7	0.023
		Slope = 0.002 ft/ft		
0.101	0.116	0.011	93.3	0.030
0.144	0.139	0.010	100.0	0.026
0.164	0.151	0.010	99.8	0.026
0.178	0.159	0.010	99.8	0.026
0.191	0.166	0.010	99.9	0.026
0.203	0.171	0.006	154.9	0.011
0.220	0.175	0.006	149.4	0.012
0.242	0.183	0.007	133.3	0.015
0.260	0.187	0.007	130.2	0.015
0.298	0.198	0.008	118.2	0.018
0.331	0.206	0.009	113.0	0.020
0.374	0.215	0.009	109.6	0.021
0.429	0.226	0.009	106.4	0.023
0.483	0.235	0.010	105.7	0.023

(Continued)

* Computed by single-channel method.

Table A7 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft		
0.103	0.105	0.011	90.8	0.031
0.163	0.138	0.011	93.5	0.029
0.250	0.158	0.011	94.8	0.029
0.229	0.168	0.006	156.7	0.010
0.251	0.175	0.006	139.2	0.013
0.275	0.183	0.007	123.7	0.017
0.313	0.193	0.008	112.2	0.020
0.356	0.202	0.009	106.8	0.023
0.396	0.210	0.009	103.0	0.024
0.457	0.221	0.010	99.6	0.026
0.523	0.232	0.010	97.3	0.027

Table A8

Meandering Channel, 20-ft Crossover, Test 8

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.072	0.114	0.010	96.7	0.028
0.146	0.172	0.005	117.4	0.008
0.340	0.227	0.011	91.8	0.031
0.435	0.241	0.011	93.9	0.029
0.205	0.196	0.008	107.4	0.022
0.263	0.212	0.010	94.4	0.029
0.102	0.140	0.010	99.1	0.026
0.291	0.219	0.011	90.9	0.031
0.204	0.197	0.009	104.0	0.024
0.396	0.238	0.011	89.4	0.032
0.178	0.189	0.008	114.0	0.020
0.114	0.152	0.011	97.1	0.027
0.050	0.086	0.009	104.1	0.024
0.532	0.257	0.011	92.0	0.030
0.394	0.237	0.011	90.3	0.032
0.297	0.219	0.010	92.7	0.030
0.235	0.206	0.010	96.1	0.028
		Slope = 0.002 ft/ft		
0.072	0.103	0.012	80.1	0.040
0.126	0.141	0.012	85.6	0.035
0.176	0.169	0.005	175.3	0.008
0.251	0.192	0.009	103.9	0.024
0.355	0.213	0.011	88.3	0.033
0.542	0.240	0.012	83.9	0.037
0.480	0.229	0.011	88.6	0.033
0.408	0.221	0.011	86.8	0.034
0.350	0.204	0.010	92.4	0.030
0.217	0.184	0.008	115.5	0.019
0.192	0.177	0.006	132.6	0.015
0.054	0.083	0.011	84.0	0.037

(Continued)

* Computed by single-channel method.

Table A8 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft		
0.068	0.089	0.012	77.5	0.043
0.101	0.110	0.012	82.8	0.038
0.146	0.138	0.012	83.8	0.037
0.025	0.165	0.012	88.4	0.033
0.289	0.190	0.009	103.6	0.024
0.411	0.210	0.011	88.9	0.033
0.554	0.227	0.011	86.4	0.035
0.482	0.219	0.011	86.9	0.034
0.354	0.201	0.010	94.1	0.029
0.251	0.183	0.008	112.9	0.020
0.179	0.153	0.012	87.1	0.034
0.052	0.074	0.012	78.8	0.041

Table A9

Meandering Channel, 10-ft Crossover, Test 8

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.066	0.113	0.011	89.9	0.032
0.104	0.147	0.011	93.5	0.029
0.147	0.180	0.007	127.7	0.016
0.205	0.201	0.010	94.4	0.029
0.290	0.220	0.011	88.8	0.033
0.413	0.241	0.011	89.1	0.032
0.539	0.258	0.011	92.0	0.030
0.478	0.250	0.011	90.7	0.031
0.354	0.231	0.011	89.4	0.032
0.252	0.213	0.011	88.6	0.033
0.178	0.194	0.009	98.5	0.027
0.049	0.092	0.010	91.9	0.031
0.125	0.160	0.011	98.1	0.027
		Slope = 0.002 ft/ft		
0.072	0.101	0.012	82.6	0.038
0.102	0.124	0.012	84.9	0.036
0.146	0.154	0.012	86.1	0.035
0.203	0.184	0.008	108.0	0.022
0.290	0.205	0.011	85.8	0.035
0.413	0.224	0.012	83.1	0.037
0.551	0.242	0.012	82.8	0.038
0.479	0.233	0.012	82.7	0.038
0.354	0.216	0.012	82.8	0.038
0.251	0.197	0.010	90.5	0.031
0.176	0.171	0.005	158.6	0.010
0.048	0.074	0.010	89.1	0.032
		Slope = 0.003 ft/ft		
0.072	0.093	0.013	76.7	0.044
0.098	0.110	0.012	80.3	0.040
0.147	0.139	0.012	83.4	0.037

(Continued)

* Computed by single-channel method.

Table A9 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft (Continued)		
0.204	0.170	0.005	157.7	0.010
0.288	0.194	0.010	92.0	0.030
0.410	0.214	0.012	81.5	0.039
0.560	0.232	0.012	80.3	0.040
0.491	0.225	0.012	79.3	0.041
0.355	0.206	0.011	83.9	0.037
0.251	0.186	0.009	102.0	0.025
0.178	0.158	0.013	82.3	0.038
0.049	0.069	0.011	82.7	0.038

Table A10

Meandering Channel, 30-ft Crossover, Test 10

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.067	0.113	0.011	91.2	0.031
0.098	0.138	0.010	97.4	0.027
0.144	0.172	0.005	174.9	0.008
0.203	0.198	0.009	100.9	0.025
0.288	0.217	0.010	93.5	0.029
0.410	0.238	0.011	92.6	0.030
0.522	0.254	0.011	93.9	0.029
0.458	0.245	0.011	93.2	0.030
0.354	0.229	0.011	92.4	0.030
0.251	0.210	0.010	94.0	0.029
0.178	0.191	0.008	107.3	0.022
0.052	0.091	0.010	99.2	0.026
		Slope = 0.002 ft/ft		
0.070	0.097	0.011	85.5	0.035
0.103	0.122	0.011	87.9	0.033
0.145	0.149	0.011	90.2	0.032
0.204	0.183	0.008	112.4	0.020
0.289	0.202	0.010	91.9	0.031
0.409	0.221	0.011	87.0	0.034
0.540	0.238	0.012	86.2	0.035
0.457	0.228	0.011	85.8	0.035
0.355	0.213	0.011	88.3	0.033
0.250	0.193	0.009	100.6	0.025
0.177	0.169	0.005	176.3	0.008
0.050	0.073	0.010	94.7	0.029
		Slope = 0.003 ft/ft		
0.068	0.090	0.013	76.2	0.044
0.107	0.117	0.012	79.6	0.041
0.144	0.141	0.013	79.8	0.040
0.205	0.172	0.006	143.8	0.012

(Continued)

* Computed by single-channel method.

Table A10 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft (Continued)		
0.289	0.195	0.010	89.8	0.032
0.410	0.216	0.012	78.3	0.042
0.560	0.233	0.013	79.0	0.041
0.458	0.222	0.012	78.1	0.042
0.353	0.207	0.012	81.5	0.039
0.252	0.187	0.009	99.2	0.026
0.176	0.158	0.013	81.4	0.039
0.049	0.069	0.011	82.7	0.038

Table A11

Meandering Channel, Three 10-ft Crossovers, Test 11

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.070	0.121	0.012	85.6	0.035
0.100	0.149	0.012	87.9	0.033
0.148	0.187	0.009	100.9	0.025
0.204	0.206	0.011	83.5	0.037
0.289	0.223	0.012	83.8	0.037
0.411	0.244	0.012	84.9	0.036
0.541	0.262	0.012	87.8	0.033
0.477	0.253	0.012	86.9	0.034
0.354	0.235	0.012	83.8	0.037
0.248	0.217	0.012	80.5	0.040
0.177	0.200	0.011	83.6	0.037
		Slope = 0.002 ft/ft		
0.249	0.198	0.010	87.5	0.034
0.322	0.212	0.012	81.7	0.039
0.434	0.228	0.012	81.5	0.039
0.504	0.237	0.012	81.7	0.039
0.177	0.180	0.008	108.7	0.022
0.144	0.157	0.013	82.4	0.038
0.101	0.128	0.013	79.9	0.040
0.204	0.191	0.010	87.0	0.034
0.559	0.244	0.012	81.6	0.039
		Slope = 0.003 ft/ft		
0.070	0.093	0.013	74.5	0.046
0.110	0.120	0.013	78.7	0.042
0.144	0.149	0.014	73.1	0.048
0.204	0.179	0.008	106.3	0.023
0.290	0.200	0.012	79.1	0.041

(Continued)

* Computed by single-channel method.

Table All (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
Slope = 0.003 ft/ft (Continued)				
0.410	0.217	0.013	76.8	0.044
0.556	0.231	0.012	81.0	0.039
0.482	0.223	0.012	80.7	0.040
0.354	0.208	0.012	80.0	0.040
0.250	0.190	0.010	89.6	0.032
0.177	0.162	0.013	78.6	0.042

Table A12

Symmetric Channel of Larger Scale, Test 12

Aspect Ratio = 2.636

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.201	0.168	0.0096	110.0	0.021
0.142	0.137	0.0096	107.0	0.023
0.251	0.188	0.0093	115.0	0.019
0.204	0.205	0.0092	117.4	0.019
0.352	0.230	0.0046	198.5	0.007
0.454	0.258	0.0071	137.6	0.014
0.577	0.277	0.0078	128.2	0.016
0.705	0.294	0.0083	124.1	0.017
0.954	0.322	0.0087	122.1	0.017
1.061	0.332	0.0087	123.0	0.017
0.100	0.114	0.0100	100.1	0.026
0.145	0.139	0.0096	106.8	0.023
0.201	0.169	0.0097	109.0	0.022
0.289	0.205	0.0094	115.4	0.019
0.412	0.250	0.0066	145.5	0.012
0.558	0.274	0.0077	129.7	0.015
0.353	0.232	0.0048	188.6	0.007
0.251	0.190	0.0095	113.1	0.020
0.178	0.158	0.0097	107.3	0.022
0.201	0.168	0.0096	110.0	0.021
		Slope = 0.002 ft/ft		
0.144	0.115	0.0099	100.6	0.025
0.207	0.146	0.0104	99.8	0.026
0.291	0.179	0.0104	101.9	0.025
0.413	0.220	0.0105	104.1	0.024
0.578	0.253	0.0071	136.1	0.014
0.826	0.281	0.0082	122.4	0.017
1.186	0.317	0.0094	113.1	0.020
1.017	0.299	0.0087	119.0	0.018
0.706	0.270	0.0080	123.4	0.017
0.501	0.241	0.0062	151.7	0.011

(Continued)

* Computed by single-channel method.

Table A12 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft		
0.144	0.104	0.0103	95.9	0.028
0.205	0.132	0.0108	94.5	0.029
0.289	0.158	0.0104	100.6	0.025
0.410	0.197	0.0107	100.7	0.025
0.578	0.242	0.0067	139.7	0.013
0.815	0.269	0.0084	118.2	0.018
1.201	0.209	0.0089	116.1	0.019
1.011	0.285	0.0088	115.7	0.019
0.701	0.253	0.0071	134.7	0.014
0.495	0.221	0.0108	101.2	0.025

Table A13

Symmetric Channel of Larger Scale with No. 8 Gravel on Floodplain

Test 13

Aspect Ratio = 2.636

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.211	0.170	0.0093	113.4	0.020
0.291	0.205	0.0093	116.2	0.019
0.406	0.252	0.0070	137.8	0.014
0.575	0.297	0.0106	97.5	0.027
0.811	0.331	0.0113	94.9	0.029
1.157	0.370	0.0115	96.7	0.028
0.993	0.352	0.0114	96.0	0.028
0.704	0.317	0.0111	94.9	0.029
0.494	0.281	0.0098	103.6	0.024
0.346	0.222	0.0090	121.6	0.017
0.149	0.137	0.0091	112.2	0.020
		Slope = 0.002 ft/ft		
0.204	0.140	0.0098	105.0	0.023
0.291	0.173	0.0098	107.5	0.022
0.412	0.212	0.0099	110.2	0.021
0.574	0.263	0.0087	112.6	0.020
0.807	0.302	0.0114	91.1	0.031
1.166	0.343	0.0126	86.3	0.035
0.992	0.324	0.0121	88.0	0.033
0.703	0.287	0.0106	95.9	0.028
0.498	0.239	0.0059	158.0	0.010
0.346	0.191	0.0098	109.3	0.022
		Slope = 0.003 ft/ft		
0.240	0.126	0.0085	118.9	0.018
0.291	0.161	0.0107	98.3	0.027
0.405	0.188	0.0100	107.1	0.022
0.571	0.238	0.0061	151.4	0.011
0.813	0.280	0.0101	99.8	0.026
1.201	0.323	0.0121	87.9	0.033
0.994	0.302	0.0113	91.6	0.031
0.699	0.263	0.0087	112.0	0.021
0.494	0.212	0.0101	107.9	0.022
0.347	0.176	0.0104	101.9	0.025

* Computed by single-channel method.

Table A14

Meandering Channel, Two 10-ft Crossovers with Channel Separating from Floodplain, Test 14

Aspect Ratio = 2.00

Discharge cfs	Depth ft	Manning* n	Chezy* C	Darcy* f
		Slope = 0.001 ft/ft		
0.481	0.277	0.0103	102.794	0.024
0.355	0.252	0.0103	99.766	0.026
0.250	0.227	0.0102	97.689	0.027
0.179	0.205	0.0096	100.216	0.026
0.200	0.212	0.0098	98.966	0.026
0.292	0.238	0.0104	97.875	0.027
0.413	0.265	0.0105	100.088	0.026
0.550	0.290	0.0104	103.605	0.024
0.098	0.148	0.0102	100.008	0.026
0.145	0.187	0.0079	117.605	0.019
0.126	0.168	0.0015	171.723	0.009
0.069	0.118	0.0098	101.172	0.025
		Slope = 0.002 ft/ft		
0.072	0.100	0.0100	96.923	0.027
0.102	0.132	0.0114	88.459	0.033
0.145	0.156	0.0107	96.086	0.028
0.205	0.189	0.0083	112.309	0.020
0.202	0.216	0.0103	95.600	0.028
0.411	0.240	0.0107	94.876	0.029
0.558	0.264	0.0108	96.671	0.028
0.480	0.251	0.0107	95.534	0.028
0.354	0.229	0.0105	95.016	0.029
0.252	0.206	0.0098	97.960	0.027
0.181	0.178	0.0069	129.928	0.015
0.125	0.142	0.0105	96.422	0.028
		Slope = 0.003 ft/ft		
0.101	0.111	0.0104	94.192	0.029
0.146	0.142	0.0110	91.954	0.030
0.203	0.173	0.0065	136.899	0.014
0.291	0.201	0.0094	101.404	0.025

(Continued)

* Computed by single-channel method.

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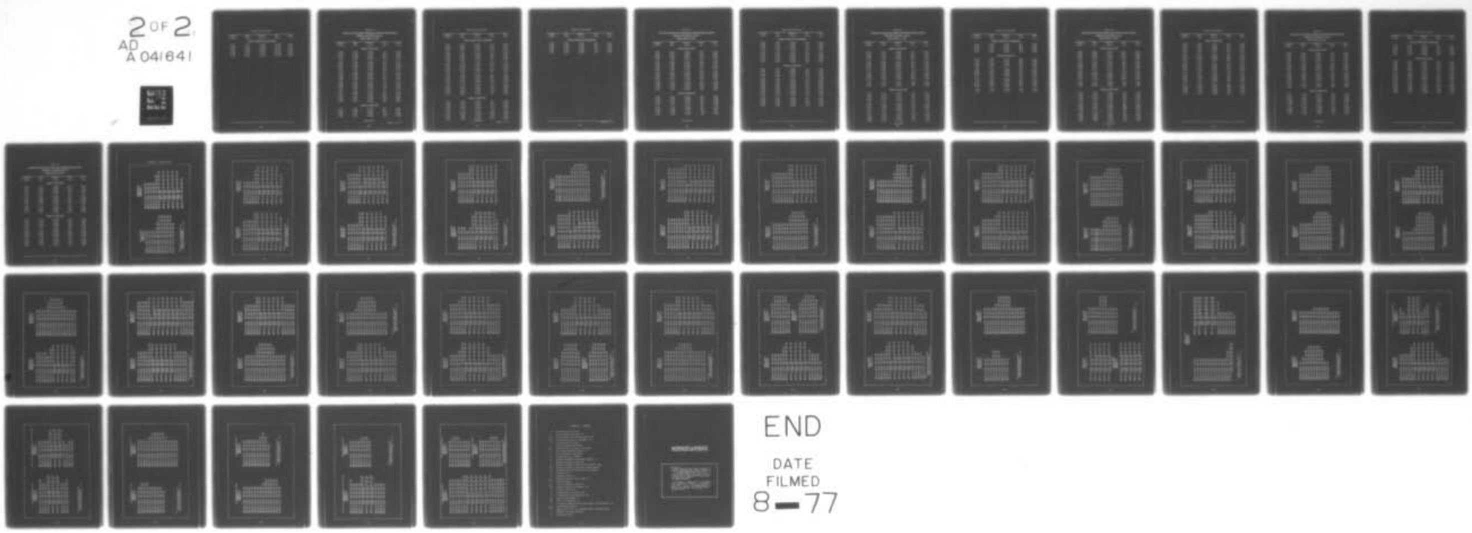

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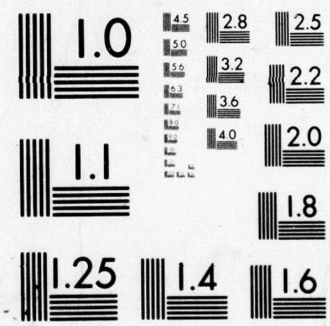
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Table A14 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
Slope = 0.003 ft/ft (Continued)				
0.410	0.227	0.0108	92.497	0.030
0.560	0.251	0.0112	91.956	0.030
0.496	0.240	0.0109	93.487	0.029
0.354	0.215	0.0102	96.192	0.028
0.250	0.188	0.0081	114.400	0.020
0.178	0.160	0.0111	92.429	0.030
0.125	0.126	0.0105	95.338	0.028

Table A15

Resistance Coefficients Computed by Separate-Channel Method

Symmetric Floodplain, Test 1

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.060	0.118	9.0521	0.0	0.044
0.079	0.134	0.0123	82.2	0.038
0.102	0.156	0.0124	83.4	0.037
0.125	0.169	0.0117	89.2	0.032
0.144	0.182	0.0128	79.6	0.041
0.161	0.189	0.0132	77.0	0.043
0.177	0.190	0.0122	83.0	0.037
0.204	0.198	0.0124	81.7	0.039
0.079	0.135	0.0125	81.3	0.039
0.118	0.166	0.0119	87.3	0.034
0.189	0.198	0.0134	75.7	0.045
0.230	0.209	0.0135	75.2	0.046
0.253	0.214	0.0134	75.9	0.045
0.290	0.222	0.0134	76.4	0.044
0.354	0.234	0.0133	78.0	0.042
0.388	0.240	0.0132	78.7	0.042
0.291	0.221	0.0131	77.9	0.042
0.228	0.210	0.0139	73.3	0.048
0.207	0.203	0.0135	75.4	0.045
0.179	0.194	0.0131	77.5	0.043
0.161	0.189	0.0132	77.0	0.043
0.143	0.182	0.0129	79.0	0.041
0.125	0.171	0.0120	86.1	0.035
0.102	0.153	0.0120	86.0	0.035
0.069	0.125	0.0125	80.2	0.040
0.051	0.104	0.0124	79.1	0.041
		Slope = 0.002 ft/ft		
0.024	0.052	0.0116	76.4	0.044
0.053	0.097	0.0150	64.7	0.061
0.082	0.122	0.0143	70.0	0.053
0.096	0.111	0.0104	95.0	0.029
0.109	0.144	0.0143	71.6	0.050

(Continued)

(Sheet 1 of 3)

Table A15 (Continued)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.117	0.150	0.0143	72.0	0.050
0.134	0.161	0.0141	73.6	0.048
0.145	0.166	0.0137	75.8	0.045
0.154	0.167	0.0131	79.8	0.040
0.169	0.177	0.0140	73.2	0.048
0.196	0.186	0.0144	70.5	0.052
0.172	0.181	0.0149	68.6	0.055
0.180	0.182	0.0145	70.3	0.052
0.209	0.189	0.0144	70.7	0.052
0.212	0.194	0.0156	64.9	0.061
0.300	0.208	0.0144	70.6	0.052
0.345	0.216	0.0144	70.8	0.051
0.400	0.226	0.0147	70.1	0.052
0.470	0.236	0.0146	71.2	0.051
0.200	0.197	0.0176	57.7	0.077
0.210	0.187	0.0137	74.0	0.047
0.156	0.176	0.0149	69.0	0.054
0.102	0.134	0.0135	75.1	0.046
0.043	0.087	0.0154	62.2	0.067
0.443	0.233	0.0148	70.0	0.053
0.535	0.242	0.0140	74.7	0.046
0.180	0.179	0.0137	74.9	0.046
0.334	0.214	0.0144	70.9	0.051
0.205	0.187	0.0141	72.2	0.049
0.250	0.197	0.0140	72.1	0.049
0.437	0.231	0.0145	71.1	0.051
		Slope = 0.003 ft/ft		
0.073	0.102	0.0145	67.3	0.057
0.102	0.124	0.0145	69.3	0.054
0.126	0.138	0.0141	72.3	0.049
0.146	0.149	0.0138	74.1	0.047
0.178	0.167	0.0138	75.3	0.045
0.204	0.179	0.0148	69.3	0.054
0.229	0.185	0.0148	68.7	0.055
0.272	0.194	0.0149	68.0	0.056
0.340	0.206	0.0150	67.7	0.056
0.320	0.203	0.0151	67.3	0.057

(Continued)

Table A15 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft (Continued)		
0.290	0.196	0.0145	69.7	0.053
0.250	0.189	0.0147	69.1	0.054
0.229	0.184	0.0145	70.1	0.052
0.206	0.179	0.0146	70.0	0.053
0.179	0.167	0.0138	75.7	0.045
0.161	0.159	0.0140	73.7	0.047

(Sheet 3 of 3

Table A16

Resistance Coefficients Computed by Separate-Channel Method

Symmetric Floodplain, Test 2

Aspect Ratio = 4.091

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.071	0.120	0.0113	88.0	0.033
0.101	0.146	0.0112	91.8	0.031
0.125	0.164	0.0110	94.3	0.029
0.144	0.177	0.0114	90.6	0.031
0.160	0.189	0.0126	81.9	0.038
0.179	0.196	0.0127	81.5	0.039
0.205	0.206	0.0130	79.6	0.041
0.250	0.219	0.0130	80.2	0.040
0.307	0.232	0.0127	82.7	0.038
0.384	0.248	0.0125	85.2	0.035
0.503	0.270	0.0123	88.2	0.033
0.456	0.262	0.0124	86.8	0.034
0.353	0.243	0.0128	83.0	0.037
0.270	0.221	0.0124	84.2	0.036
0.229	0.213	0.0130	80.1	0.040
0.192	0.201	0.0128	80.7	0.040
0.169	0.192	0.0125	82.3	0.038
0.153	0.183	0.0119	86.8	0.034
0.134	0.171	0.0112	93.0	0.030
0.114	0.157	0.0112	92.2	0.030
		Slope = 0.002 ft/ft		
0.070	0.101	0.0121	80.3	0.040
0.101	0.128	0.0126	79.9	0.040
0.128	0.147	0.0126	81.3	0.039
0.145	0.159	0.0127	81.3	0.039
0.161	0.168	0.0126	82.6	0.038
0.177	0.174	0.0125	82.8	0.038
0.204	0.184	0.0128	80.5	0.040
0.250	0.198	0.0132	77.9	0.042
0.320	0.214	0.0133	78.0	0.042
0.435	0.236	0.0134	78.8	0.042

(Continued)

Table A16 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.543	0.253	0.0133	80.5	0.040
0.488	0.245	0.0134	79.3	0.041
0.383	0.227	0.0134	77.9	0.042
0.289	0.208	0.0134	77.0	0.043
0.228	0.191	0.0129	79.8	0.040
0.191	0.181	0.0130	79.3	0.041
0.170	0.170	0.0123	84.7	0.036
0.154	0.160	0.0121	85.5	0.035
0.136	0.149	0.0121	84.6	0.036
0.113	0.134	0.0122	83.2	0.037
0.051	0.083	0.0120	79.3	0.041
		Slope = 0.003 ft/ft		
0.054	0.079	0.0127	74.0	0.047
0.101	0.115	0.0128	77.2	0.043
0.144	0.142	0.0129	78.9	0.041
0.163	0.151	0.0127	81.0	0.039
0.176	0.158	0.0127	81.4	0.039
0.192	0.166	0.0127	82.0	0.038
0.204	0.172	0.0129	80.5	0.040
0.228	0.181	0.0134	77.3	0.043
0.269	0.193	0.0139	74.4	0.047
0.340	0.207	0.0138	75.1	0.046
0.458	0.230	0.0144	73.1	0.048
0.512	0.236	0.0139	75.7	0.045
0.579	0.243	0.0135	78.6	0.042
0.434	0.224	0.0139	75.0	0.046
0.383	0.211	0.0130	79.6	0.041
0.303	0.200	0.0138	74.7	0.046
0.250	0.184	0.0128	80.5	0.040
0.248	0.187	0.0136	75.9	0.045
0.194	0.168	0.0128	81.3	0.039
0.123	0.132	0.0133	75.7	0.045

Table A17

Resistance Coefficients Computed by Separate-Channel Method

Symmetric Floodplain, Test 3

Aspect Ratio = 1.364

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.072	0.112	0.0099	99.4	0.026
0.102	0.144	0.0108	94.7	0.029
0.126	0.159	0.0104	99.9	0.026
0.146	0.172	0.0104	100.7	0.025
0.178	0.194	0.0116	90.8	0.031
0.206	0.208	0.0120	87.7	0.033
0.252	0.223	0.0119	89.8	0.032
0.324	0.244	0.0117	92.1	0.030
0.408	0.268	0.0119	92.5	0.030
0.501	0.289	0.0117	95.2	0.028
0.458	0.280	0.0118	93.6	0.029
0.365	0.255	0.0117	93.2	0.030
0.286	0.233	0.0118	91.2	0.031
0.228	0.215	0.0119	89.2	0.032
0.176	0.194	0.0117	89.8	0.032
0.162	0.187	0.0115	90.9	0.031
0.132	0.165	0.0105	98.6	0.027
0.116	0.154	0.0107	96.8	0.028
		Slope = 0.002 ft/ft		
0.102	0.121	0.0113	98.2	0.033
0.151	0.152	0.0113	91.0	0.031
0.164	0.158	0.0111	92.9	0.030
0.178	0.166	0.0112	93.1	0.030
0.192	0.175	0.0116	89.9	0.032
0.207	0.182	0.0119	88.0	0.033
0.230	0.190	0.0120	87.6	0.034
0.272	0.204	0.0122	86.1	0.035
0.341	0.222	0.0123	86.9	0.034
0.454	0.251	0.0128	85.2	0.035
0.454	0.250	0.0126	86.0	0.035
0.541	0.266	0.0124	88.3	0.033
0.490	0.256	0.0124	87.6	0.034
0.396	0.235	0.0123	87.4	0.034
0.306	0.212	0.0121	87.7	0.033

(Continued)

Table A17 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
Slope = 0.002 ft/ft (Continued)				
0.248	0.196	0.0121	87.1	0.034
0.216	0.185	0.0119	88.1	0.033
0.198	0.178	0.0117	88.9	0.033
0.185	0.170	0.0113	92.6	0.030
0.152	0.152	0.0112	91.6	0.031
Slope = 0.003 ft/ft				
0.072	0.087	0.0112	85.0	0.036
0.123	0.123	0.0118	84.6	0.036
0.180	0.154	0.0119	86.7	0.034
0.192	0.159	0.0118	87.9	0.033
0.206	0.165	0.0117	88.8	0.033
0.230	0.176	0.0120	86.7	0.034
0.273	0.191	0.0125	83.7	0.037
0.354	0.210	0.0125	84.9	0.036
0.457	0.233	0.0128	84.1	0.036
0.540	0.249	0.0129	84.4	0.036
0.501	0.242	0.0129	84.0	0.037
0.410	0.224	0.0128	83.4	0.037
0.312	0.202	0.0127	82.8	0.038
0.252	0.183	0.0121	86.2	0.035
0.216	0.171	0.0120	87.1	0.034
0.142	0.133	0.0117	86.4	0.035
0.196	0.161	0.0118	87.9	0.033

Table A18

Resistance Coefficients Computed by Separate-Channel Method

Asymmetric Floodplain, Test 5

Aspect Ratio = 0.682

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.489	0.300	0.0111	102.1	0.025
0.468	0.294	0.0111	101.9	0.025
0.432	0.285	0.0112	100.3	0.026
0.409	0.278	0.0112	100.1	0.026
0.382	0.270	0.0112	99.4	0.026
0.354	0.261	0.0112	99.0	0.026
0.323	0.251	0.0112	98.2	0.027
0.289	0.239	0.0112	97.6	0.027
0.250	0.225	0.0112	96.3	0.028
0.217	0.211	0.0111	96.3	0.028
0.192	0.199	0.0110	96.9	0.027
0.178	0.192	0.0109	97.3	0.027
0.162	0.182	0.0106	99.5	0.026
0.145	0.171	0.0103	101.7	0.025
0.125	0.158	0.0103	100.7	0.026
0.100	0.139	0.0104	98.2	0.027
0.072	0.114	0.0102	96.7	0.028
0.054	0.093	0.0097	99.6	0.026
		Slope = 0.002 ft/ft		
0.072	0.097	0.0110	88.0	0.033
0.102	0.115	0.0104	95.5	0.028
0.144	0.146	0.0111	92.5	0.030
0.169	0.162	0.0113	91.9	0.030
0.190	0.174	0.0115	90.9	0.031
0.205	0.181	0.0117	90.1	0.032
0.219	0.187	0.0118	89.7	0.032
0.228	0.191	0.0119	89.1	0.032
0.252	0.201	0.0121	88.0	0.033
0.288	0.213	0.0121	88.5	0.033
0.323	0.223	0.0121	89.7	0.032
0.367	0.236	0.0121	90.1	0.032
0.409	0.248	0.0122	90.2	0.032
0.457	0.261	0.0123	90.3	0.032
0.503	0.273	0.0124	90.4	0.032

(Continued)

Table A18 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.003 ft/ft		
0.072	0.089	0.0117	82.1	0.038
0.101	0.111	0.0121	81.6	0.039
0.145	0.134	0.0116	87.1	0.034
0.191	0.157	0.0116	89.2	0.032
0.215	0.167	0.0115	90.9	0.031
0.229	0.174	0.0117	89.4	0.032
0.250	0.182	0.0119	88.7	0.033
0.270	0.188	0.0118	89.2	0.032
0.307	0.200	0.0120	88.5	0.033
0.339	0.209	0.0121	88.7	0.033
0.382	0.222	0.0124	87.5	0.034
0.421	0.232	0.0124	87.6	0.034
0.468	0.245	0.0127	86.5	0.034
0.510	0.254	0.0127	87.2	0.034
0.556	0.264	0.0127	87.6	0.034
0.103	0.105	0.0108	90.8	0.031
0.163	0.138	0.0109	93.5	0.029
0.205	0.158	0.0109	94.8	0.029
0.229	0.168	0.0109	96.0	0.028
0.251	0.175	0.0109	95.0	0.029
0.275	0.183	0.0113	91.9	0.030
0.313	0.193	0.0116	89.6	0.032
0.356	0.202	0.0117	89.1	0.032
0.396	0.210	0.0118	88.5	0.033
0.457	0.221	0.0119	88.2	0.033
0.523	0.232	0.0120	88.1	0.033

Table A19

Resistance Coefficients Computed by Separate-Channel Method

Asymmetric Floodplain, Test 6

Aspect Ratio = 1.318

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.074	0.119	0.0107	92.9	0.030
0.127	0.160	0.0104	99.7	0.026
0.217	0.206	0.0111	95.2	0.028
0.282	0.226	0.0109	97.8	0.027
0.330	0.242	0.0112	96.5	0.028
0.374	0.254	0.0112	97.3	0.027
0.414	0.264	0.0112	98.2	0.027
0.453	0.274	0.0112	98.4	0.027
0.484	0.280	0.0111	100.0	0.026
0.502	0.284	0.0111	100.3	0.026
0.469	0.277	0.0111	99.3	0.026
0.433	0.268	0.0111	99.1	0.026
0.394	0.258	0.0111	98.7	0.026
0.351	0.248	0.0112	96.7	0.028
0.306	0.235	0.0112	96.2	0.028
0.248	0.217	0.0112	95.3	0.028
0.179	0.190	0.0109	96.6	0.028
0.100	0.138	0.0102	99.4	0.026
		Slope = 0.002 ft/ft		
0.101	0.120	0.0113	88.5	0.033
0.170	0.162	0.0112	92.5	0.030
0.253	0.193	0.0113	92.8	0.030
0.306	0.210	0.0117	90.3	0.032
0.356	0.223	0.0118	90.2	0.032
0.395	0.231	0.0117	91.7	0.031
0.434	0.241	0.0119	90.7	0.031
0.466	0.248	0.0119	90.8	0.031
0.502	0.257	0.0122	89.8	0.032
0.482	0.251	0.0119	91.2	0.031
0.448	0.243	0.0118	91.7	0.031

(Continued)

Table A19 (Concluded)

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.002 ft/ft (Continued)		
0.412	0.236	0.0119	90.7	0.031
0.373	0.227	0.0118	90.4	0.032
0.329	0.216	0.0118	90.4	0.032
0.272	0.200	0.0116	91.0	0.031
0.215	0.181	0.0113	92.8	0.030
0.144	0.145	0.0109	93.5	0.029
		Slope = 0.003 ft/ft		
0.098	0.107	0.0117	83.9	0.037
0.204	0.162	0.0115	90.6	0.031
0.270	0.185	0.0116	90.0	0.032
0.322	0.200	0.0120	88.0	0.033
0.368	0.213	0.0124	85.6	0.035
0.407	0.222	0.0125	85.2	0.035
0.445	0.230	0.0126	85.2	0.035
0.478	0.236	0.0125	85.9	0.035
0.510	0.242	0.0125	86.1	0.035
0.494	0.240	0.0127	85.2	0.036
0.459	0.232	0.0125	86.0	0.035
0.426	0.225	0.0124	86.2	0.035
0.387	0.216	0.0122	86.8	0.034
0.345	0.206	0.0121	87.4	0.034
0.295	0.192	0.0117	89.5	0.032
0.235	0.175	0.0116	89.9	0.032
0.161	0.144	0.0118	86.3	0.035

Table A20

Resistance Coefficients Computed by Separate-Channel Method

Asymmetric Floodplain, Test 7

Aspect Ratio = 2.045

Discharge cfs	Depth ft	Manning n	Chezy C	Darcy f
		Slope = 0.001 ft/ft		
0.081	0.116	0.0094	105.8	0.023
0.161	0.177	0.0102	102.4	0.025
0.251	0.209	0.0106	98.5	0.027
0.322	0.229	0.0109	97.4	0.027
0.383	0.244	0.0110	97.3	0.027
0.435	0.255	0.0110	98.2	0.027
0.482	0.264	0.0109	99.4	0.026
0.505	0.268	0.0109	100.1	0.026
0.457	0.259	0.0109	99.0	0.026
0.408	0.249	0.0109	98.1	0.027
0.354	0.237	0.0109	97.3	0.027
0.288	0.219	0.0106	98.8	0.026
0.214	0.197	0.0104	99.9	0.026
0.120	0.148	0.0096	106.7	0.023
		Slope = 0.002 ft/ft		
0.101	0.116	0.0106	93.3	0.030
0.144	0.139	0.0102	100.0	0.026
0.164	0.151	0.0103	99.8	0.026
0.178	0.159	0.0104	99.8	0.026
0.191	0.166	0.0104	99.9	0.026
0.203	0.171	0.0104	100.0	0.026
0.220	0.175	0.0102	102.0	0.025
0.242	0.183	0.0105	99.1	0.026
0.260	0.187	0.0104	100.0	0.026
0.298	0.198	0.0107	96.9	0.027
0.331	0.206	0.0109	95.8	0.028
0.374	0.215	0.0110	95.7	0.028
0.429	0.226	0.0111	95.2	0.028
0.483	0.235	0.0110	96.1	0.028

APPENDIX B: VELOCITY DATA

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH[2] 0.202 FT.
DISCHARGE 0.192 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 17.0 IN.	EL.[4](FT.)	0.005	0.020				
DEPTH[3] 0.035 FT.	VEL(FPS)	0.256	0.455				
RANGE 20.5 IN.	EL.(FT.)	0.005	0.027				
DEPTH 0.035 FT.	VEL(FPS)	0.394	0.607				
RANGE 23.5 IN.	EL.(FT.)	0.005	0.022				
DEPTH 0.035 FT.	VEL(FPS)	0.557	0.773				
RANGE 24.5 IN.	EL.(FT.)	0.005	0.022				
DEPTH 0.035 FT.	VEL(FPS)	0.729	0.925				
RANGE 25.5 IN.	EL.(FT.)	0.005	0.036	0.071	0.106		
DEPTH 0.119 FT.	VEL(FPS)	0.350	1.034	1.152	1.209		
RANGE 26.5 IN.	EL.(FT.)	0.005	0.025	0.065	0.105	0.145	0.195
DEPTH 0.202 FT.	VEL(FPS)	0.815	0.979	1.203	1.306	1.372	1.406
RANGE 27.5 IN.	EL.(FT.)	0.005	0.030	0.070	0.110	0.150	0.200
DEPTH 0.202 FT.	VEL(FPS)	0.846	1.093	1.268	1.347	1.406	1.460
RANGE 30.0 IN.	EL.(FT.)	0.005	0.029	0.069	0.109	0.149	0.199
DEPTH 0.202 FT.	VEL(FPS)	0.828	1.024	1.159	1.268	1.320	1.385
RANGE 32.5 IN.	EL.(FT.)	0.005	0.028	0.068	0.108	0.148	0.198
DEPTH 0.202 FT.	VEL(FPS)	0.846	1.069	1.271	1.358	1.404	1.448
RANGE 33.5 IN.	EL.(FT.)	0.005	0.029	0.069	0.109	0.149	0.199
DEPTH 0.202 FT.	VEL(FPS)	0.729	0.937	1.056	1.178	1.245	1.303
RANGE 34.5 IN.	EL.(FT.)	0.005	0.019	0.054	0.089		
DEPTH 0.119 FT.	VEL(FPS)	0.759	0.868	1.056	1.103		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. DEPTH OF THE FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH 0.240 FT.
DISCHARGE 0.285 CFS
SLOPE 0.001 FT/FT.

RANGE 17.0 IN.	EL.(FT.)	0.005	0.027	0.062			
DEPTH 0.073 FT.	VEL(FPS)	0.570	0.693	0.797			
RANGE 20.5 IN.	EL.(FT.)	0.005	0.031	0.066			
DEPTH 0.073 FT.	VEL(FPS)	0.631	0.792	0.921			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.027	0.062			
DEPTH 0.073 FT.	VEL(FPS)	0.714	0.937	1.063			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.026	0.061			
DEPTH 0.073 FT.	VEL(FPS)	0.824	1.056	1.162			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.028	0.068	0.118	0.168	
DEPTH 0.157 FT.	VEL(FPS)	1.076	1.165	1.239	1.325	1.345	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.032	0.062	0.102	0.142	0.192
DEPTH 0.240 FT.	VEL(FPS)	0.991	1.227	1.300	1.419	1.460	1.527
	EL.(FT.)	0.242					
	VEL(FPS)	1.549					
RANGE 27.5 IN.	EL.(FT.)	0.005	0.018	0.048	0.088	0.128	0.178
DEPTH 0.240 FT.	VEL(FPS)	0.979	1.140	1.353	1.493	1.560	1.602
	EL.(FT.)	0.228					
	VEL(FPS)	1.618					
RANGE 30.0 IN.	EL.(FT.)	0.005	0.017	0.047	0.087	0.127	0.177
DEPTH 0.240 FT.	VEL(FPS)	0.897	1.009	1.212	1.328	1.393	1.490
	EL.(FT.)	0.227					
	VEL(FPS)	1.563					
RANGE 32.5 IN.	EL.(FT.)	0.005	0.017	0.047	0.087	0.127	0.177
DEPTH 0.240 FT.	VEL(FPS)	0.859	1.098	1.325	1.483	1.525	1.589
	EL.(FT.)	0.227					
	VEL(FPS)	1.607					
RANGE 33.5 IN.	EL.(FT.)	0.005	0.014	0.044	0.084	0.124	0.174
DEPTH 0.240 FT.	VEL(FPS)	0.837	0.979	1.165	1.303	1.377	1.448
	EL.(FT.)	0.224					
	VEL(FPS)	1.463					
RANGE 34.5 IN.	EL.(FT.)	0.005	0.035	0.085	0.135		
DEPTH 0.157 FT.	VEL(FPS)	0.792	1.063	1.227	1.283		

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH[2] 0.257 FT.
DISCHARGE 0.338 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 17.0	IN.	EL.[4](FT.)	0.005	0.023	0.053	0.078		
DEPTH[3] 0.090	FT.	VEL(FPS)	0.631	0.792	0.905	0.949		
RANGE 20.5	IN.	EL.(FT.)	0.005	0.024	0.054	0.079		
DEPTH 0.090	FT.	VEL(FPS)	0.671	0.868	0.998	1.066		
RANGE 23.5	IN.	EL.(FT.)	0.005	0.018	0.048	0.073		
DEPTH 0.090	FT.	VEL(FPS)	0.783	0.960	1.117	1.190		
RANGE 24.5	IN.	EL.(FT.)	0.005	0.020	0.050	0.075		
DEPTH 0.090	FT.	VEL(FPS)	0.925	1.005	1.187	1.274		
RANGE 25.5	IN.	EL.(FT.)	0.005	0.028	0.068	0.108	0.138	0.163
DEPTH 0.174	FT.	VEL(FPS)	1.059	1.190	1.314	1.355	1.404	1.430
RANGE 26.5	IN.	EL.(FT.)	0.005	0.021	0.041	0.071	0.111	0.151
DEPTH 0.257	FT.	VEL(FPS)	0.937	1.120	1.311	1.448	1.522	1.549
		EL.(FT.)	0.201	0.236				
		VEL(FPS)	1.565	1.565				
RANGE 27.5	IN.	EL.(FT.)	0.005	0.026	0.046	0.076	0.116	0.156
DEPTH 0.257	FT.	VEL(FPS)	0.987	1.286	1.435	1.529	1.579	1.637
		EL.(FT.)	0.206	0.241				
		VEL(FPS)	1.646	1.674				
RANGE 30.0	IN.	EL.(FT.)	0.005	0.026	0.046	0.076	0.116	0.156
DEPTH 0.257	FT.	VEL(FPS)	0.859	1.100	1.196	1.325	1.406	1.490
		EL.(FT.)	0.206	0.241				
		VEL(FPS)	1.570	1.646				
RANGE 32.5	IN.	EL.(FT.)	0.005	0.025	0.045	0.075	0.115	0.155
DEPTH 0.257	FT.	VEL(FPS)	0.933	1.236	1.396	1.503	1.572	1.609
		EL.(FT.)	0.205	0.240				
		VEL(FPS)	1.630	1.641				
RANGE 33.5	IN.	EL.(FT.)	0.005	0.023	0.043	0.073	0.113	0.153
DEPTH 0.257	FT.	VEL(FPS)	0.806	1.156	1.283	1.366	1.475	1.515
		EL.(FT.)	0.203	0.238				
		VEL(FPS)	1.551	1.558				
RANGE 34.5	IN.	EL.(FT.)	0.005	0.023	0.063	0.113	0.148	
DEPTH 0.174	FT.	VEL(FPS)	0.819	1.016	1.187	1.366	1.385	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH 0.192 FT.
DISCHARGE 0.223 CFS
SLOPE 0.002 FT/FT.

RANGE 17.0	IN.	EL.(FT.)	0.005	0.012				
DEPTH 0.025	FT.	VEL(FPS)	0.478	0.493				
RANGE 20.5	IN.	EL.(FT.)	0.005	0.013				
DEPTH 0.025	FT.	VEL(FPS)	0.543	0.595				
RANGE 23.5	IN.	EL.(FT.)	0.005	0.013				
DEPTH 0.025	FT.	VEL(FPS)	0.708	0.815				
RANGE 24.5	IN.	EL.(FT.)	0.005	0.015				
DEPTH 0.025	FT.	VEL(FPS)	0.846	0.976				
RANGE 25.5	IN.	EL.(FT.)	0.005	0.020	0.040	0.080	0.116	
DEPTH 0.109	FT.	VEL(FPS)	0.987	1.203	1.314	1.510	1.560	
RANGE 26.5	IN.	EL.(FT.)	0.005	0.023	0.043	0.073	0.113	0.153
DEPTH 0.192	FT.	VEL(FPS)	0.998	1.254	1.350	1.505	1.643	1.735
		EL.(FT.)	0.189					
		VEL(FPS)	1.822					
RANGE 27.5	IN.	EL.(FT.)	0.005	0.028	0.048	0.078	0.118	0.158
DEPTH 0.192	FT.	VEL(FPS)	1.009	1.358	1.437	1.579	1.692	1.790
		EL.(FT.)	0.194					
		VEL(FPS)	1.842					
RANGE 30.0	IN.	EL.(FT.)	0.005	0.018	0.038	0.068	0.108	0.148
DEPTH 0.192	FT.	VEL(FPS)	0.949	1.123	1.233	1.422	1.549	1.679
		EL.(FT.)	0.184					
		VEL(FPS)	1.760					
RANGE 32.5	IN.	EL.(FT.)	0.005	0.028	0.048	0.078	0.118	0.158
DEPTH 0.192	FT.	VEL(FPS)	0.987	1.265	1.419	1.560	1.672	1.754
		EL.(FT.)	0.194					
		VEL(FPS)	1.787					
RANGE 33.5	IN.	EL.(FT.)	0.005	0.019	0.039	0.069	0.109	0.149
DEPTH 0.192	FT.	VEL(FPS)	0.941	0.972	1.117	1.297	1.480	1.616
		EL.(FT.)	0.185					
		VEL(FPS)	1.639					
RANGE 34.5	IN.	EL.(FT.)	0.005	0.021	0.051	0.077		
DEPTH 0.109	FT.	VEL(FPS)	0.987	1.052	1.221	1.291		

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH[2] 0.225 FT.
DISCHARGE 0.302 CFS
SLOPE 0.002 FT/FT.

RANGE[1] 17.0 IN.	EL.[4](FT.)	0.005	0.022	0.042			
DEPTH[3] 0.058 FT.	VEL(FPS)	0.583	0.698	0.783			
RANGE 20.5 IN.	EL.(FT.)	0.005	0.027	0.047			
DEPTH 0.058 FT.	VEL(FPS)	0.654	0.846	0.972			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.022	0.042			
DEPTH 0.058 FT.	VEL(FPS)	0.778	1.136	1.280			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.027	0.047			
DEPTH 0.058 FT.	VEL(FPS)	1.005	1.331	1.458			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.021	0.041	0.071	0.106	0.146
DEPTH 0.142 FT.	VEL(FPS)	1.271	1.437	1.556	1.699	1.787	1.856
RANGE 26.5 IN.	EL.(FT.)	0.005	0.022	0.042	0.072	0.102	0.142
DEPTH 0.225 FT.	VEL(FPS)	1.090	1.314	1.512	1.703	1.777	1.858
	EL.(FT.)	0.177	0.217				
	VEL(FPS)	1.930	1.994				
RANGE 27.5 IN.	EL.(FT.)	0.005	0.026	0.046	0.076	0.106	0.146
DEPTH 0.225 FT.	VEL(FPS)	1.133	1.432	1.607	1.714	1.787	1.858
	EL.(FT.)	0.181	0.221				
	VEL(FPS)	1.892	1.928				
RANGE 30.0 IN.	EL.(FT.)	0.005	0.024	0.044	0.074	0.104	0.144
DEPTH 0.225 FT.	VEL(FPS)	1.016	1.212	1.377	1.483	1.591	1.674
	EL.(FT.)	0.179	0.219				
	VEL(FPS)	1.746	1.834				
RANGE 32.5 IN.	EL.(FT.)	0.005	0.023	0.043	0.073	0.103	0.143
DEPTH 0.225 FT.	VEL(FPS)	1.045	1.385	1.549	1.646	1.735	1.816
	EL.(FT.)	0.178	0.218				
	VEL(FPS)	1.882	1.911				
RANGE 33.5 IN.	EL.(FT.)	0.005	0.022	0.042	0.072	0.102	0.142
DEPTH 0.225 FT.	VEL(FPS)	0.859	1.073	1.274	1.427	1.525	1.663
	EL.(FT.)	0.177	0.217				
	VEL(FPS)	1.722	1.777				
RANGE 34.5 IN.	EL.(FT.)	0.005	0.020	0.050	0.085	0.125	
DEPTH 0.142 FT.	VEL(FPS)	0.953	1.127	1.409	1.570	1.584	

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH 0.263 FT.
DISCHARGE 0.464 CFS
SLOPE 0.002 FT/FT.

RANGE 17.0 IN.	EL.(FT.)	0.005	0.025	0.055	0.085		
DEPTH 0.096 FT.	VEL(FPS)	0.792	1.016	1.156	1.193		
RANGE 20.5 IN.	EL.(FT.)	0.005	0.029	0.059	0.089		
DEPTH 0.096 FT.	VEL(FPS)	0.859	1.156	1.291	1.380		
RANGE 23.5 IN.	EL.(FT.)	0.005	0.024	0.054	0.084		
DEPTH 0.096 FT.	VEL(FPS)	0.945	1.248	1.475	1.577		
RANGE 24.5 IN.	EL.(FT.)	0.005	0.024	0.054	0.084		
DEPTH 0.096 FT.	VEL(FPS)	1.056	1.334	1.560	1.696		
RANGE 25.5 IN.	EL.(FT.)	0.005	0.027	0.057	0.097	0.137	0.167
DEPTH 0.130 FT.	VEL(FPS)	1.522	1.609	1.643	1.750	1.818	1.878
	EL.(FT.)	0.197					
	VEL(FPS)	1.923					
RANGE 26.5 IN.	EL.(FT.)	0.005	0.028	0.058	0.088	0.118	0.158
DEPTH 0.263 FT.	VEL(FPS)	1.190	1.512	1.767	1.898	1.959	2.025
	EL.(FT.)	0.198	0.228	0.258			
	VEL(FPS)	2.087	2.123	2.130			
RANGE 27.5 IN.	EL.(FT.)	0.005	0.016	0.046	0.076	0.106	0.146
DEPTH 0.263 FT.	VEL(FPS)	1.260	1.460	1.814	1.955	1.989	2.049
	EL.(FT.)	0.186	0.216	0.246			
	VEL(FPS)	2.078	2.125	2.142			
RANGE 30.0 IN.	EL.(FT.)	0.005	0.021	0.051	0.081	0.111	0.151
DEPTH 0.263 FT.	VEL(FPS)	1.073	1.274	1.621	1.685	1.769	1.878
	EL.(FT.)	0.191	0.221	0.251			
	VEL(FPS)	1.976	2.045	2.078			
RANGE 32.5 IN.	EL.(FT.)	0.005	0.017	0.047	0.077	0.107	0.147
DEPTH 0.263 FT.	VEL(FPS)	1.136	1.437	1.787	1.940	2.020	2.088
	EL.(FT.)	0.187	0.217	0.247			
	VEL(FPS)	2.134	2.148	2.156			
RANGE 33.5 IN.	EL.(FT.)	0.005	0.038	0.068	0.098	0.138	0.178
DEPTH 0.263 FT.	VEL(FPS)	0.994	1.529	1.643	1.722	1.854	1.953
	EL.(FT.)	0.208	0.238				
	VEL(FPS)	2.007	2.029				
RANGE 34.5 IN.	EL.(FT.)	0.005	0.039	0.079	0.109	0.139	
DEPTH 0.180 FT.	VEL(FPS)	1.107	1.419	1.652	1.733	1.785	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH[2] 0.183 FT.
DISCHARGE 0.250 CFS
SLOPE 0.003 FT/FT.
STATION 0.

RANGE[1] 17.0 IN.		EL.[4](FT.)	0.005	0.014				
DEPTH[3] 0.016 FT.		VEL(FPS)	0.595	0.729				
RANGE 20.0 IN.		EL.(FT.)	0.005	0.010				
DEPTH 0.016 FT.		VEL(FPS)	0.515	0.625				
RANGE 22.5 IN.		EL.(FT.)	0.005	0.009				
DEPTH 0.016 FT.		VEL(FPS)	0.607	0.744				
RANGE 23.5 IN.		EL.(FT.)	0.005					
DEPTH 0.016 FT.		VEL(FPS)	0.850					
RANGE 24.5 IN.		EL.(FT.)	0.005	0.015				
DEPTH 0.016 FT.		VEL(FPS)	1.020	1.184				
RANGE 25.5 IN.		EL.(FT.)	0.005	0.015	0.036	0.066	0.096	
DEPTH 0.100 FT.		VEL(FPS)	1.331	1.437	1.537	1.718	1.812	
RANGE 26.5 IN.		EL.(FT.)	0.005	0.015	0.035	0.065	0.095	0.125
DEPTH 0.183 FT.		VEL(FPS)	1.215	1.345	1.616	1.882	1.985	2.069
		EL.(FT.)	0.155	0.177	0.	0.	0.	0.
		VEL(FPS)	2.125	2.130	0.	0.	0.	0.
RANGE 27.5 IN.		EL.(FT.)	0.005	0.022	0.040	0.070	0.100	0.130
DEPTH 0.183 FT.		VEL(FPS)	1.320	1.532	1.741	1.917	2.088	2.159
		EL.(FT.)	0.160	0.178	0.	0.	0.	0.
		VEL(FPS)	2.230	2.251	0.	0.	0.	0.
RANGE 30.0 IN.		EL.(FT.)	0.005	0.013	0.033	0.073	0.103	0.133
DEPTH 0.183 FT.		VEL(FPS)	1.303	1.380	1.598	1.760	1.921	2.051
		EL.(FT.)	0.163	0.183	0.	0.	0.	0.
		VEL(FPS)	2.148	2.178	0.	0.	0.	0.
RANGE 32.5 IN.		EL.(FT.)	0.005	0.019	0.029	0.069	0.099	0.129
DEPTH 0.183 FT.		VEL(FPS)	1.274	1.515	1.612	1.913	1.974	2.109
		EL.(FT.)	0.159	0.179	0.	0.	0.	0.
		VEL(FPS)	2.165	2.175	0.	0.	0.	0.
RANGE 33.5 IN.		EL.(FT.)	0.005	0.021	0.061	0.101	0.141	0.171
DEPTH 0.183 FT.		VEL(FPS)	0.749	0.880	1.532	1.771	1.932	1.978
RANGE 34.5 IN.		EL.(FT.)	0.005	0.020	0.035	0.055		
DEPTH 0.100 FT.		VEL(FPS)	1.152	1.294	1.560	1.584		

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH 0.233 FT.
DISCHARGE 0.410 CFS
SLOPE 0.003 FT/FT.

RANGE 17.0 IN.	EL.(FT.)	0.005	0.010	0.020	0.047		
DEPTH 0.066 FT.	VEL(FPS)	0.719	0.768	0.837	0.970		
RANGE 20.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.057		
DEPTH 0.066 FT.	VEL(FPS)	0.870	0.951	1.043	1.281		
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.056		
DEPTH 0.066 FT.	VEL(FPS)	0.989	1.112	1.296	1.641		
RANGE 24.5 IN.	EL.(FT.)	0.005	0.011	0.026	0.061		
DEPTH 0.066 FT.	VEL(FPS)	1.103	1.267	1.566	1.802		
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.144
DEPTH 0.150 FT.	VEL(FPS)	1.351	1.385	1.584	1.781	1.968	2.051
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.233 FT.	VEL(FPS)	1.230	1.345	1.596	1.872	2.069	2.232
	EL.(FT.)	0.160	0.219				
	VEL(FPS)	2.329	2.360				
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.024	0.044	0.074	0.114
DEPTH 0.233 FT.	VEL(FPS)	1.345	1.512	1.802	2.015	2.232	2.337
	EL.(FT.)	0.164	0.223				
	VEL(FPS)	2.430	2.482				
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.324	0.044	0.074	0.114
DEPTH 0.233 FT.	VEL(FPS)	1.034	1.260	1.500	1.707	1.852	2.015
	EL.(FT.)	0.164	0.223				
	VEL(FPS)	2.156	2.321				
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.024	0.044	0.074	0.114
DEPTH 0.233 FT.	VEL(FPS)	1.303	1.411	1.750	1.987	2.173	2.289
	EL.(FT.)	0.164	0.223				
	VEL(FPS)	2.352	2.430				
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.233 FT.	VEL(FPS)	1.152	1.215	1.463	1.718	1.862	1.987
	EL.(FT.)	0.160	0.219				
	VEL(FPS)	2.130	2.240				
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.125
DEPTH 0.150 FT.	VEL(FPS)	1.215	1.317	1.424	1.674	1.892	1.930

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 0.682
DEPTH[2] 0.254 FT.
DISCHARGE 0.518 CFS
SLOPE 0.003 FT/FT.

RANGE[1] 17.0 IN.		EL.[4](FT.)	0.005	0.010	0.020	0.040	0.060	
DEPTH[3] 0.087 FT.		VEL(FPS)	0.989	1.043	1.112	1.184	1.252	
RANGE 20.5 IN.		EL.(FT.)	0.005	0.010	0.020	0.040	0.079	
DEPTH 0.087 FT.		VEL(FPS)	1.025	1.128	1.245	1.392	1.555	
RANGE 23.5 IN.		EL.(FT.)	0.005	0.010	0.020	0.040	0.079	
DEPTH 0.087 FT.		VEL(FPS)	1.176	1.281	1.437	1.635	1.812	
RANGE 24.5 IN.		EL.(FT.)	0.005	0.010	0.023	0.043	0.082	
DEPTH 0.087 FT.		VEL(FPS)	1.296	1.411	1.607	1.812	1.949	
RANGE 25.5 IN.		EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.171 FT.		VEL(FPS)	1.424	1.543	1.760	1.959	2.060	2.148
		EL.(FT.)	0.161					
		VEL(FPS)	2.165					
RANGE 26.5 IN.		EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.254 FT.		VEL(FPS)	1.200	1.372	1.696	1.978	2.215	2.321
		EL.(FT.)	0.160	0.237				
		VEL(FPS)	2.368	2.391				
RANGE 27.5 IN.		EL.(FT.)	0.005	0.010	0.016	0.028	0.048	0.078
DEPTH 0.254 FT.		VEL(FPS)	1.405	1.607	1.842	2.005	2.223	2.368
		EL.(FT.)	0.118	0.168	0.245			
		VEL(FPS)	2.467	2.541	2.581			
RANGE 30.0 IN.		EL.(FT.)	0.005	0.010	0.022	0.032	0.052	0.082
DEPTH 0.254 FT.		VEL(FPS)	1.317	1.475	1.674	1.802	1.921	2.069
		EL.(FT.)	0.122	0.172	0.249			
		VEL(FPS)	2.173	2.297	2.504			
RANGE 32.5 IN.		EL.(FT.)	0.005	0.010	0.019	0.029	0.049	0.079
DEPTH 0.254 FT.		VEL(FPS)	1.385	1.572	1.842	2.005	2.223	2.399
		EL.(FT.)	0.119	0.169	0.247			
		VEL(FPS)	2.475	2.563	2.570			
RANGE 33.5 IN.		EL.(FT.)	0.005	0.010	0.018	0.028	0.048	0.078
DEPTH 0.254 FT.		VEL(FPS)	1.317	1.437	1.641	1.802	1.987	2.148
		EL.(FT.)	0.118	0.168	0.245			
		VEL(FPS)	2.256	2.376	2.376			
RANGE 34.5 IN.		EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.171 FT.		VEL(FPS)	1.463	1.537	1.641	1.832	1.959	2.078
		EL.(FT.)	0.154					
		VEL(FPS)	2.051					

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH 0.196 FT.
DISCHARGE 0.185 CFS
SLOPE 0.001 FT/FT.

RANGE 10.0 IN.	EL.(FT.)	0.005	0.010	0.020			
DEPTH 0.029 FT.	VEL(FPS)	0.172	0.219	0.219			
RANGE 13.5 IN.	EL.(FT.)	0.005	0.010	0.024			
DEPTH 0.029 FT.	VEL(FPS)	0.364	0.490	0.622			
RANGE 17.0 IN.	EL.(FT.)	0.005	0.010	0.022			
DEPTH 0.029 FT.	VEL(FPS)	0.389	0.467	0.543			
RANGE 20.5 IN.	EL.(FT.)	0.005	0.010	0.022			
DEPTH 0.029 FT.	VEL(FPS)	0.430	0.482	0.576			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.019			
DEPTH 0.029 FT.	VEL(FPS)	0.592	0.665	0.756			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.020			
DEPTH 0.029 FT.	VEL(FPS)	0.679	0.837	0.941			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.060	0.110	
DEPTH 0.113 FT.	VEL(FPS)	0.837	0.880	0.998	1.087	1.152	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.060	0.110	0.182
DEPTH 0.196 FT.	VEL(FPS)	0.768	0.848	1.025	1.136	1.289	1.372
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.032	0.062	0.112	0.184
DEPTH 0.196 FT.	VEL(FPS)	0.815	0.880	1.069	1.215	1.331	1.418
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.034	0.064	0.114	0.186
DEPTH 0.196 FT.	VEL(FPS)	0.665	0.804	1.016	1.136	1.245	1.385
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.033	0.063	0.113	0.185
DEPTH 0.196 FT.	VEL(FPS)	0.815	0.901	1.120	1.230	1.317	1.372
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.059	0.109	0.181
DEPTH 0.196 FT.	VEL(FPS)	0.744	0.792	0.941	1.052	1.136	1.260
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.027	0.077		
DEPTH 0.113 FT.	VEL(FPS)	0.768	0.815	0.921	1.061		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH[2] 0.240 FT.
DISCHARGE 0.316 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 10.0	IN.	:EL.[4](FT.)	0.005	0.010	0.030	0.059		
DEPTH[3] 0.073	FT.	:VEL(FPS)	0.490	0.576	0.693	0.731		
RANGE 13.5	IN.	:EL.(FT.)	0.005	0.011	0.036	0.065		
DEPTH 0.073	FT.	:VEL(FPS)	0.576	0.637	0.768	0.880		
RANGE 17.0	IN.	:EL.(FT.)	0.005	0.010	0.035	0.064		
DEPTH 0.073	FT.	:VEL(FPS)	0.622	0.679	0.792	0.891		
RANGE 20.5	IN.	:EL.(FT.)	0.005	0.010	0.035	0.065		
DEPTH 0.073	FT.	:VEL(FPS)	0.622	0.693	0.859	0.979		
RANGE 23.5	IN.	:EL.(FT.)	0.005	0.010	0.035	0.065		
DEPTH 0.073	FT.	:VEL(FPS)	0.744	0.792	0.998	1.120		
RANGE 24.5	IN.	:EL.(FT.)	0.005	0.011	0.036	0.067		
DEPTH 0.073	FT.	:VEL(FPS)	0.693	0.921	1.103	1.237		
RANGE 25.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.090	0.151
DEPTH 0.157	FT.	:VEL(FPS)	0.901	0.941	1.034	1.136	1.260	1.331
RANGE 26.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.240	FT.	:VEL(FPS)	0.792	0.941	1.052	1.215	1.345	1.390
		EL.(FT.)	0.160	0.224				
		VEL(FPS)	1.450	1.450				
RANGE 27.5	IN.	:EL.(FT.)	0.005	0.010	0.026	0.046	0.076	0.116
DEPTH 0.240	FT.	:VEL(FPS)	0.870	0.979	1.200	1.331	1.424	1.494
		EL.(FT.)	0.166	0.230				
		VEL(FPS)	1.537	1.549				
RANGE 30.0	IN.	:EL.(FT.)	0.005	0.010	0.029	0.049	0.079	0.119
DEPTH 0.240	FT.	:VEL(FPS)	0.837	0.901	1.069	1.152	1.245	1.317
		EL.(FT.)	0.169	0.234				
		VEL(FPS)	1.398	1.488				
RANGE 32.5	IN.	:EL.(FT.)	0.005	0.010	0.029	0.049	0.079	0.119
DEPTH 0.240	FT.	:VEL(FPS)	0.837	0.941	1.200	1.331	1.437	1.488
		EL.(FT.)	0.169	0.234				
		VEL(FPS)	1.537	1.560				
RANGE 33.5	IN.	:EL.(FT.)	0.005	0.010	0.029	0.049	0.079	0.119
DEPTH 0.240	FT.	:VEL(FPS)	0.837	0.941	1.052	1.184	1.260	1.331
		EL.(FT.)	0.169	0.233				
		VEL(FPS)	1.398	1.424				
RANGE 34.5	IN.	:EL.(FT.)	0.005	0.010	0.021	0.071	0.135	
DEPTH 0.157	FT.	:VEL(FPS)	0.859	0.921	0.998	1.184	1.260	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH 0.287 FT.
DISCHARGE 0.490 CFS
SLOPE 0.001 FT/FT.

RANGE 10.0	IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.110	
DEPTH 0.120	FT.	:VEL(FPS)	0.607	0.637	0.731	0.859	0.960	
RANGE 13.5	IN.	:EL.(FT.)	0.005	0.010	0.025	0.055	0.115	
DEPTH 0.120	FT.	:VEL(FPS)	0.665	0.719	0.880	0.989	1.144	
RANGE 17.0	IN.	:EL.(FT.)	0.005	0.010	0.023	0.053	0.113	
DEPTH 0.120	FT.	:VEL(FPS)	0.679	0.756	0.911	1.052	1.184	
RANGE 20.5	IN.	:EL.(FT.)	0.005	0.010	0.021	0.051	0.112	
DEPTH 0.120	FT.	:VEL(FPS)	0.744	0.837	0.960	1.069	1.245	
RANGE 23.5	IN.	:EL.(FT.)	0.005	0.010	0.022	0.052	0.113	
DEPTH 0.120	FT.	:VEL(FPS)	0.792	0.880	1.034	1.215	1.345	
RANGE 24.5	IN.	:EL.(FT.)	0.005	0.010	0.031	0.061	0.122	
DEPTH 0.120	FT.	:VEL(FPS)	0.815	0.941	1.144	1.260	1.385	
RANGE 25.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.130
DEPTH 0.204	FT.	:VEL(FPS)	1.007	1.061	1.168	1.274	1.358	1.424
		EL.(FT.)	0.204					
		VEL(FPS)	1.500					
RANGE 26.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.120
DEPTH 0.287	FT.	:VEL(FPS)	1.025	1.120	1.230	1.358	1.475	1.549
		EL.(FT.)	0.190	0.272				
		VEL(FPS)	1.572	1.572				
RANGE 27.5	IN.	:EL.(FT.)	0.005	0.010	0.027	0.047	0.077	0.127
DEPTH 0.287	FT.	:VEL(FPS)	1.016	1.120	1.317	1.437	1.549	1.607
		EL.(FT.)	0.197	0.279				
		VEL(FPS)	1.635	1.641				
RANGE 30.0	IN.	:EL.(FT.)	0.005	0.010	0.027	0.047	0.077	0.127
DEPTH 0.287	FT.	:VEL(FPS)	0.880	0.941	1.103	1.200	1.317	1.411
		EL.(FT.)	0.197	0.279				
		VEL(FPS)	1.500	1.596				
RANGE 32.5	IN.	:EL.(FT.)	0.005	0.010	0.024	0.044	0.074	0.124
DEPTH 0.287	FT.	:VEL(FPS)	0.960	1.087	1.303	1.437	1.572	1.652
		EL.(FT.)	0.194	0.276				
		VEL(FPS)	1.685	1.696				
RANGE 33.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.120
DEPTH 0.287	FT.	:VEL(FPS)	0.979	1.043	1.136	1.289	1.398	1.525
		EL.(FT.)	0.190	0.272				
		VEL(FPS)	1.641	1.584				
RANGE 34.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.100	0.173
DEPTH 0.204	FT.	:VEL(FPS)	0.880	0.921	0.998	1.184	1.303	1.303

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH[2] 0.192 FT.
DISCHARGE 0.252 CFS
SLOPE 0.002 FT/FT.

RANGE[1] 10.0	IN.	EL.[4](FT.)	0.005	0.010	0.018			
DEPTH[3] 0.025	FT.	VEL(FPS)	0.182	0.201	0.219			
RANGE 13.0	IN.	EL.(FT.)	0.005	0.010	0.019			
DEPTH 0.025	FT.	VEL(FPS)	0.210	0.258	0.333			
RANGE 17.5	IN.	EL.(FT.)	0.005	0.010	0.020			
DEPTH 0.025	FT.	VEL(FPS)	0.219	0.258	0.285			
RANGE 21.0	IN.	EL.(FT.)	0.005	0.010	0.018			
DEPTH 0.025	FT.	VEL(FPS)	0.384	0.470	0.490			
RANGE 23.5	IN.	EL.(FT.)	0.005	0.010	0.018			
DEPTH 0.025	FT.	VEL(FPS)	0.768	0.880	1.016			
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010	0.029			
DEPTH 0.025	FT.	VEL(FPS)	0.979	1.087	1.274			
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.119	
DEPTH 0.109	FT.	VEL(FPS)	1.052	1.120	1.230	1.437	1.663	
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.100	0.179
DEPTH 0.192	FT.	VEL(FPS)	1.120	1.168	1.289	1.525	1.718	1.862
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.026	0.056	0.106	0.185
DEPTH 0.192	FT.	VEL(FPS)	1.136	1.184	1.385	1.596	1.792	1.968
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.028	0.058	0.108	0.187
DEPTH 0.192	FT.	VEL(FPS)	1.136	1.260	1.488	1.663	1.812	1.968
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.023	0.053	0.103	0.182
DEPTH 0.192	FT.	VEL(FPS)	1.184	1.331	1.566	1.812	1.940	2.033
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.038	0.088	0.167
DEPTH 0.192	FT.	VEL(FPS)	1.168	1.245	1.358	1.488	1.607	1.802
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.024	0.083		
DEPTH 0.109	FT.	VEL(FPS)	1.016	1.087	1.245	1.475		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH 0.219 FT.
DISCHARGE 0.356 CFS
SLOPE 0.002 FT/FT.

RANGE 10.0	IN.	EL.(FT.)	0.005	0.010	0.020	0.051		
DEPTH 0.052	FT.	VEL(FPS)	0.607	0.637	0.651	0.815		
RANGE 13.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.049		
DEPTH 0.052	FT.	VEL(FPS)	0.693	0.756	0.815	0.949		
RANGE 17.0	IN.	EL.(FT.)	0.005	0.010	0.020	0.050		
DEPTH 0.052	FT.	VEL(FPS)	0.682	0.756	0.826	0.960		
RANGE 20.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.048		
DEPTH 0.052	FT.	VEL(FPS)	0.693	0.859	0.937	1.087		
RANGE 23.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.048		
DEPTH 0.052	FT.	VEL(FPS)	0.960	1.016	1.200	1.358		
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.050		
DEPTH 0.052	FT.	VEL(FPS)	1.061	1.200	1.358	1.525		
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.136
DEPTH 0.136	FT.	VEL(FPS)	1.152	1.289	1.411	1.537	1.674	1.760
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.219	FT.	VEL(FPS)	1.016	1.136	1.385	1.549	1.718	1.872
		EL.(FT.)	0.160	0.208				
		VEL(FPS)	1.968	1.987				
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.026	0.046	0.076	0.116
DEPTH 0.219	FT.	VEL(FPS)	1.103	1.215	1.512	1.685	1.842	1.968
		EL.(FT.)	0.166	0.214				
		VEL(FPS)	2.051	2.078				
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.028	0.048	0.078	0.118
DEPTH 0.219	FT.	VEL(FPS)	1.144	1.215	1.418	1.525	1.641	1.750
		EL.(FT.)	0.168	0.216				
		VEL(FPS)	1.882	1.968				
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.026	0.046	0.076	0.116
DEPTH 0.219	FT.	VEL(FPS)	1.087	1.260	1.537	1.739	1.862	1.959
		EL.(FT.)	0.166	0.214				
		VEL(FPS)	2.024	2.033				
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.219	FT.	VEL(FPS)	1.052	1.152	1.331	1.537	1.630	1.696
		EL.(FT.)	0.160	0.208				
		VEL(FPS)	1.822	1.872				
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.116
DEPTH 0.136	FT.	VEL(FPS)	1.152	1.200	1.289	1.424	1.596	1.618

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                    ASYMMETRIC FLOODPLAIN
                      ASPECT RATIO 1.318
                      DEPTH[2] 0.258 FT.
                      DISCHARGE 0.502 CFS
                      SLOPE 0.002 FT/FT.

RANGE[1] 10.0  IN. :EL[4].(FT.)   0.005  0.010  0.020  0.040  0.085
DEPTH[3] 0.091 FT. :VEL(FPS)     0.665  0.731  0.859  0.974  1.112

RANGE 13.5  IN. :EL.(FT.)    0.005  0.010  0.021  0.041  0.087
DEPTH 0.091 FT. :VEL(FPS)    0.756  0.837  0.960  1.103  1.274

RANGE 17.0  IN. :EL.(FT.)    0.005  0.010  0.019  0.039  0.086
DEPTH 0.091 FT. :VEL(FPS)    0.780  0.848  0.951  1.120  1.289

RANGE 20.5  IN. :EL.(FT.)    0.005  0.010  0.019  0.039  0.086
DEPTH 0.091 FT. :VEL(FPS)    0.901  0.951  1.069  1.237  1.411

RANGE 23.5  IN. :EL.(FT.)    0.005  0.010  0.017  0.037  0.064
DEPTH 0.091 FT. :VEL(FPS)    0.989  1.067  1.200  1.398  1.607

RANGE 24.5  IN. :EL.(FT.)    0.005  0.010  0.023  0.043  0.090
DEPTH 0.091 FT. :VEL(FPS)    1.087  1.184  1.345  1.537  1.685

RANGE 25.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.040  0.070  0.110
DEPTH 0.175 FT. :VEL(FPS)    1.245  1.274  1.424  1.584  1.718  1.792
                 EL.(FT.)    0.179
                 VEL(FPS)    1.832

RANGE 26.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.040  0.070  0.110
DEPTH 0.258 FT. :VEL(FPS)    1.168  1.200  1.411  1.630  1.802  1.940
                 EL.(FT.)    0.160  0.250
                 VEL(FPS)    1.996  2.015

RANGE 27.5  IN. :EL.(FT.)    0.005  0.010  0.021  0.041  0.071  0.111
DEPTH 0.258 FT. :VEL(FPS)    1.274  1.345  1.512  1.750  1.940  2.015
                 EL.(FT.)    0.161  0.251
                 VEL(FPS)    2.069  2.122

RANGE 30.0  IN. :EL.(FT.)    0.005  0.010  0.021  0.041  0.071  0.111
DEPTH 0.258 FT. :VEL(FPS)    1.016  1.152  1.345  1.537  1.696  1.832
                 EL.(FT.)    0.161  0.251
                 VEL(FPS)    1.949  2.087

RANGE 32.5  IN. :EL.(FT.)    0.005  0.010  0.019  0.039  0.069  0.109
DEPTH 0.258 FT. :VEL(FPS)    1.215  1.289  1.463  1.696  1.901  2.005
                 EL.(FT.)    0.159  0.249
                 VEL(FPS)    2.087  2.113

RANGE 33.5  IN. :EL.(FT.)    0.005  0.010  0.017  0.037  0.067  0.107
DEPTH 0.258 FT. :VEL(FPS)    1.087  1.112  1.200  1.437  1.641  1.750
                 EL.(FT.)    0.157  0.247
                 VEL(FPS)    1.862  1.940

RANGE 34.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.040  0.070  0.143
DEPTH 0.175 FT. :VEL(FPS)    1.120  1.184  1.289  1.450  1.560  1.696
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                    ASYMMETRIC FLOODPLAIN
                    ASPECT RATIO 1.318
                    DEPTH 0.189 FT.
                    DISCHARGE 0.286 CFS
                    SLOPE 0.003 FT/FT.

RANGE 10.0  IN. :EL.(FT.)    0.005  0.014
DEPTH 0.022 FT. :VEL(FPS)    0.430  0.515

RANGE 13.5  IN. :EL.(FT.)    0.005  0.014
DEPTH 0.022 FT. :VEL(FPS)    0.501  0.569

RANGE 17.0  IN. :EL.(FT.)    0.005  0.012
DEPTH 0.022 FT. :VEL(FPS)    0.530  0.557

RANGE 20.5  IN. :EL.(FT.)    0.005  0.010
DEPTH 0.022 FT. :VEL(FPS)    0.714  0.778

RANGE 23.5  IN. :EL.(FT.)    0.005  0.011
DEPTH 0.022 FT. :VEL(FPS)    1.067  1.303

RANGE 24.5  IN. :EL.(FT.)    0.005  0.013
DEPTH 0.022 FT. :VEL(FPS)    1.621  1.661

RANGE 25.5  IN. :EL.(FT.)    0.005  0.027  0.067  0.107
DEPTH 0.106 FT. :VEL(FPS)    1.390  1.652  1.947  2.000

RANGE 26.5  IN. :EL.(FT.)    0.005  0.023  0.053  0.093  0.133  0.183
DEPTH 0.189 FT. :VEL(FPS)    1.294  1.493  1.758  2.051  2.203  2.228

RANGE 27.5  IN. :EL.(FT.)    0.005  0.026  0.056  0.096  0.136  0.176
DEPTH 0.189 FT. :VEL(FPS)    1.283  1.663  1.884  2.173  2.278  2.356

RANGE 30.0  IN. :EL.(FT.)    0.005  0.029  0.059  0.099  0.139  0.179
DEPTH 0.189 FT. :VEL(FPS)    1.339  1.646  1.822  2.018  2.177  2.303

RANGE 32.5  IN. :EL.(FT.)    0.005  0.027  0.057  0.097  0.137  0.177
DEPTH 0.189 FT. :VEL(FPS)    1.289  1.739  2.005  2.158  2.240  2.300

RANGE 34.5  IN. :EL.(FT.)    0.005  0.033  0.073
DEPTH 0.106 FT. :VEL(FPS)    1.274  1.541  1.637

RANGE 33.5  IN. :EL.(FT.)    0.005  0.022  0.052  0.092  0.132  0.172
DEPTH 0.189 FT. :VEL(FPS)    1.133  1.366  1.607  1.735  1.921  2.022
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***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH[2] 0.215 FT.
DISCHARGE 0.401 CFS
SLOPE 0.003 FT/FT.

RANGE[1] 10.0 IN.	:EL.[4](FT.)	0.005	0.010	0.025	0.048		
DEPTH[3] 0.048 FT.	:VEL(FPS)	0.515	0.607	0.768	0.901		
RANGE 13.5 IN.	:EL.(FT.)	0.005	0.010	0.026	0.049		
DEPTH 0.048 FT.	:VEL(FPS)	0.665	0.768	0.941	1.103		
RANGE 17.0 IN.	:EL.(FT.)	0.005	0.010	0.024	0.047		
DEPTH 0.048 FT.	:VEL(FPS)	0.679	0.744	0.921	1.087		
RANGE 20.5 IN.	:EL.(FT.)	0.005	0.010	0.025	0.048		
DEPTH 0.048 FT.	:VEL(FPS)	0.792	0.826	1.034	1.207		
RANGE 23.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.044		
DEPTH 0.048 FT.	:VEL(FPS)	0.941	1.087	1.274	1.549		
RANGE 24.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.064	
DEPTH 0.048 FT.	:VEL(FPS)	1.152	1.166	1.358	1.618	1.750	
RANGE 25.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.132 FT.	:VEL(FPS)	1.317	1.331	1.525	1.760	1.921	2.024
	EL.(FT.)	0.143					
	VEL(FPS)	2.051					
RANGE 26.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.140
DEPTH 0.215 FT.	:VEL(FPS)	1.215	1.260	1.525	1.822	2.078	2.289
	EL.(FT.)	0.212					
	VEL(FPS)	2.329					
RANGE 27.5 IN.	:EL.(FT.)	0.005	0.010	0.019	0.039	0.079	0.139
DEPTH 0.215 FT.	:VEL(FPS)	1.345	1.512	1.718	1.940	2.190	2.360
	EL.(FT.)	0.212					
	VEL(FPS)	2.430					
RANGE 30.0 IN.	:EL.(FT.)	0.005	0.010	0.018	0.038	0.078	0.138
DEPTH 0.215 FT.	:VEL(FPS)	1.152	1.245	1.424	1.685	1.882	2.113
	EL.(FT.)	0.211					
	VEL(FPS)	2.321					
RANGE 32.5 IN.	:EL.(FT.)	0.005	0.010	0.019	0.039	0.079	0.139
DEPTH 0.215 FT.	:VEL(FPS)	1.260	1.358	1.618	1.892	2.139	2.265
	EL.(FT.)	0.212					
	VEL(FPS)	2.337					
RANGE 33.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.067	0.127
DEPTH 0.215 FT.	:VEL(FPS)	1.184	1.184	1.317	1.584	1.739	1.968
	EL.(FT.)	0.200					
	VEL(FPS)	2.087					
RANGE 34.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.102
DEPTH 0.132 FT.	:VEL(FPS)	1.184	1.215	1.385	1.596	1.792	1.792

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 1.318
DEPTH 0.240 FT.
DISCHARGE 0.500 CFS
SLOPE 0.003 FT/FT.

RANGE 10.0 IN.	:EL.(FT.)	0.005	0.010	0.020	0.055		
DEPTH 0.073 FT.	:VEL(FPS)	0.837	0.837	0.911	1.128		
RANGE 13.5 IN.	:EL.(FT.)	0.005	0.010	0.023	0.062		
DEPTH 0.073 FT.	:VEL(FPS)	0.891	0.979	1.120	1.252		
RANGE 17.0 IN.	:EL.(FT.)	0.005	0.010	0.022	0.061		
DEPTH 0.073 FT.	:VEL(FPS)	0.911	0.998	1.136	1.289		
RANGE 20.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.060		
DEPTH 0.073 FT.	:VEL(FPS)	0.901	1.069	1.192	1.392		
RANGE 23.5 IN.	:EL.(FT.)	0.005	0.010	0.021	0.061		
DEPTH 0.073 FT.	:VEL(FPS)	1.069	1.200	1.372	1.696		
RANGE 24.5 IN.	:EL.(FT.)	0.005	0.010	0.023	0.063		
DEPTH 0.073 FT.	:VEL(FPS)	1.303	1.411	1.618	1.882		
RANGE 25.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.090	0.150
DEPTH 0.157 FT.	:VEL(FPS)	1.411	1.488	1.696	1.882	2.033	2.122
RANGE 26.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
DEPTH 0.240 FT.	:VEL(FPS)	1.230	1.512	1.760	1.996	2.156	2.305
	EL.(FT.)	0.160	0.218				
	VEL(FPS)	2.352	2.352				
RANGE 27.5 IN.	:EL.(FT.)	0.005	0.010	0.028	0.048	0.078	0.118
DEPTH 0.240 FT.	:VEL(FPS)	1.345	1.525	1.940	2.148	2.305	2.460
	EL.(FT.)	0.168	0.225				
	VEL(FPS)	2.526	2.526				
RANGE 30.0 IN.	:EL.(FT.)	0.005	0.010	0.032	0.052	0.082	0.122
DEPTH 0.240 FT.	:VEL(FPS)	1.351	1.488	1.771	1.921	2.033	2.165
	EL.(FT.)	0.172	0.230				
	VEL(FPS)	2.321	2.482				
RANGE 32.5 IN.	:EL.(FT.)	0.005	0.010	0.029	0.049	0.079	0.119
DEPTH 0.240 FT.	:VEL(FPS)	1.303	1.525	1.987	2.207	2.352	2.430
	EL.(FT.)	0.169	0.227				
	VEL(FPS)	2.519	2.519				
RANGE 33.5 IN.	:EL.(FT.)	0.005	0.010	0.022	0.042	0.072	0.112
DEPTH 0.240 FT.	:VEL(FPS)	1.289	1.424	1.663	1.822	2.060	2.148
	EL.(FT.)	0.162	0.220				
	VEL(FPS)	2.256	2.273				
RANGE 34.5 IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.080	0.125
DEPTH 0.157 FT.	:VEL(FPS)	1.331	1.437	1.584	1.771	1.949	1.968

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH[2] 0.193 FT.
DISCHARGE 0.197 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 2.0 IN.	EL.[4] (FT.)	0.005	0.020			
DEPTH[3] 0.026 FT.	VEL(FPS)	0.333	0.508			
RANGE 12.0 IN.	EL.(FT.)	0.005	0.023			
DEPTH 0.026 FT.	VEL(FPS)	0.285	0.543			
RANGE 18.0 IN.	EL.(FT.)	0.005	0.016			
DEPTH 0.026 FT.	VEL(FPS)	0.354	0.523			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.018			
DEPTH 0.026 FT.	VEL(FPS)	0.576	0.744			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.017			
DEPTH 0.026 FT.	VEL(FPS)	0.744	0.859			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.040	0.103	
DEPTH 0.110 FT.	VEL(FPS)	0.815	0.901	1.052	1.200	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.080	0.182
DEPTH 0.193 FT.	VEL(FPS)	0.801	0.880	1.034	1.215	1.358
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.033	0.083	0.185
DEPTH 0.193 FT.	VEL(FPS)	0.815	0.941	1.103	1.245	1.411
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.034	0.084	0.186
DEPTH 0.193 FT.	VEL(FPS)	0.768	0.921	1.103	1.260	1.463
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.034	0.084	0.186
DEPTH 0.193 FT.	VEL(FPS)	0.880	0.960	1.168	1.331	1.437
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.028	0.078	0.180
DEPTH 0.193 FT.	VEL(FPS)	0.815	0.901	0.998	1.136	1.303
RANGE 34.5 IN.	EL.(FT.)	0.005	0.025	0.080		
DEPTH 0.110 FT.	VEL(FPS)	0.859	0.960	1.087		

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH 0.237 FT.
DISCHARGE 0.356 CFS
SLOPE 0.001 FT/FT.

RANGE 2.0 IN.	EL.(FT.)	0.005	0.010	0.020	0.063		
DEPTH 0.070 FT.	VEL(FPS)	0.430	0.543	0.619	0.792		
RANGE 12.0 IN.	EL.(FT.)	0.005	0.010	0.018	0.063		
DEPTH 0.070 FT.	VEL(FPS)	0.607	0.665	0.729	0.880		
RANGE 18.0 IN.	EL.(FT.)	0.005	0.010	0.020	0.064		
DEPTH 0.070 FT.	VEL(FPS)	0.607	0.665	0.744	0.921		
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.061		
DEPTH 0.070 FT.	VEL(FPS)	0.744	0.815	0.921	1.103		
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.066		
DEPTH 0.070 FT.	VEL(FPS)	0.665	0.744	0.941	1.184		
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.080	0.149	
DEPTH 0.154 FT.	VEL(FPS)	0.913	0.960	1.152	1.274	1.303	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.130	0.224
DEPTH 0.237 FT.	VEL(FPS)	0.901	0.979	1.215	1.358	1.450	1.463
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.036	0.076	0.136	0.230
DEPTH 0.237 FT.	VEL(FPS)	0.998	1.069	1.303	1.475	1.560	1.560
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.038	0.078	0.138	0.232
DEPTH 0.237 FT.	VEL(FPS)	0.941	1.016	1.245	1.358	1.463	1.572
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.037	0.077	0.137	0.231
DEPTH 0.237 FT.	VEL(FPS)	1.052	1.120	1.358	1.488	1.572	1.584
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.071	0.131	0.225
DEPTH 0.237 FT.	VEL(FPS)	0.979	0.998	1.184	1.345	1.463	1.488
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.041	0.135		
DEPTH 0.154 FT.	VEL(FPS)	0.880	0.960	1.168	1.331		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH[2] 0.268 FT.
DISCHARGE 0.506 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 2.0	IN.	EL.[4](FT.)	0.005	0.010	0.021	0.051	0.097	
DEPTH[3] 0.101	FT.	VEL(FPS)	0.625	0.719	0.837	0.960	1.076	
RANGE 12.0	IN.	EL.(FT.)	0.005	0.010	0.021	0.051	0.098	
DEPTH 0.101	FT.	VEL(FPS)	0.744	0.792	0.901	1.052	1.184	
RANGE 18.0	IN.	EL.(FT.)	0.005	0.010	0.018	0.046	0.096	
DEPTH 0.101	FT.	VEL(FPS)	0.729	0.837	0.985	1.059	1.190	
RANGE 23.5	IN.	EL.(FT.)	0.005	0.010	0.016	0.046	0.094	
DEPTH 0.101	FT.	VEL(FPS)	0.850	0.960	0.998	1.200	1.356	
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010	0.016	0.046	0.094	
DEPTH 0.101	FT.	VEL(FPS)	0.979	1.034	1.087	1.260	1.385	
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.060	0.118	0.180
DEPTH 0.185	FT.	VEL(FPS)	1.016	1.087	1.245	1.372	1.437	1.463
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.035	0.075	0.125	0.185
DEPTH 0.268	FT.	VEL(FPS)	1.016	1.087	1.331	1.488	1.560	1.572
		EL.(FT.)	0.255					
		VEL(FPS)	1.584					
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.042	0.082	0.132	0.192
DEPTH 0.268	FT.	VEL(FPS)	1.016	1.120	1.437	1.57?	1.641	1.663
		EL.(FT.)	0.263					
		VEL(FPS)	1.663					
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.042	0.082	0.132	0.192
DEPTH 0.268	FT.	VEL(FPS)	0.981	1.016	1.289	1.411	1.512	1.584
		EL.(FT.)	0.263					
		VEL(FPS)	1.696					
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.038	0.078	0.128	0.188
DEPTH 0.268	FT.	VEL(FPS)	0.987	1.120	1.398	1.584	1.652	1.707
		EL.(FT.)	0.259					
		VEL(FPS)	1.707					
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.034	0.074	0.124	0.184
DEPTH 0.268	FT.	VEL(FPS)	1.016	1.034	1.230	1.385	1.512	1.584
		EL.(FT.)	0.255					
		VEL(FPS)	1.584					
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.080	0.165	
DEPTH 0.185	FT.	VEL(FPS)	0.981	0.998	1.168	1.331	1.411	

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH 0.183 FT.
DISCHARGE 0.232 CFS
SLOPE 0.002 FT/FT.

RANGE 2.0	IN.	EL.(FT.)	0.005	0.008				
DEPTH 0.016	FT.	VEL(FPS)	0.333	0.412				
RANGE 12.0	IN.	EL.(FT.)	0.005	0.010				
DEPTH 0.016	FT.	VEL(FPS)	0.344	0.550				
RANGE 18.0	IN.	EL.(FT.)	0.005	0.009				
DEPTH 0.016	FT.	VEL(FPS)	0.310	0.430				
RANGE 23.5	IN.	EL.(FT.)	0.005	0.011				
DEPTH 0.016	FT.	VEL(FPS)	0.490	0.530				
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010				
DEPTH 0.016	FT.	VEL(FPS)	0.744	0.901				
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.060	0.098	
DEPTH 0.100	FT.	VEL(FPS)	1.016	1.120	1.274	1.437	1.525	
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.120
DEPTH 0.183	FT.	VEL(FPS)	1.052	1.103	1.260	1.411	1.596	1.696
		EL.(FT.)	0.174					
		VEL(FPS)	1.750					
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.022	0.042	0.072	0.122
DEPTH 0.183	FT.	VEL(FPS)	1.016	1.168	1.317	1.450	1.630	1.792
		EL.(FT.)	0.176					
		VEL(FPS)	1.862					
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.023	0.043	0.073	0.123
DEPTH 0.183	FT.	VEL(FPS)	1.034	1.230	1.424	1.572	1.718	1.862
		EL.(FT.)	0.177					
		VEL(FPS)	2.005					
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.021	0.041	0.071	0.121
DEPTH 0.183	FT.	VEL(FPS)	1.120	1.317	1.463	1.596	1.739	1.882
		EL.(FT.)	0.175					
		VEL(FPS)	1.959					
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.017	0.037	0.067	0.117
DEPTH 0.183	FT.	VEL(FPS)	1.087	1.103	1.184	1.411	1.560	1.696
		EL.(FT.)	0.171					
		VEL(FPS)	1.792					
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.066		
DEPTH 0.100	FT.	VEL(FPS)	1.136	1.222	1.345	1.398		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH[2] 0.204 FT.
DISCHARGE 0.321 CFS
SLOPE 0.002 FT/FT.
STATION 0.

RANGE[1] 2.0	IN.	EL.[4](FT.)	0.005	0.010	0.033			
DEPTH[3] 0.037	FT.	VEL(FPS)	0.438	0.557	0.654			
RANGE 12.0	IN.	EL.(FT.)	0.005	0.010	0.030			
DEPTH 0.037	FT.	VEL(FPS)	0.576	0.637	0.719			
RANGE 18.0	IN.	EL.(FT.)	0.005	0.010	0.031			
DEPTH 0.037	FT.	VEL(FPS)	0.576	0.693	0.837			
RANGE 23.5	IN.	EL.(FT.)	0.005	0.010	0.028			
DEPTH 0.037	FT.	VEL(FPS)	0.921	0.968	1.230			
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010	0.030			
DEPTH 0.037	FT.	VEL(FPS)	0.921	1.136	1.424			
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.110	
DEPTH 0.121	FT.	VEL(FPS)	1.136	1.245	1.411	1.584	1.760	
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.130	0.189
DEPTH 0.204	FT.	VEL(FPS)	1.120	1.245	1.512	1.674	1.940	1.978
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.034	0.074	0.134	0.193
DEPTH 0.204	FT.	VEL(FPS)	1.184	1.303	1.687	1.802	2.015	2.095
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.039	0.079	0.139	0.198
DEPTH 0.204	FT.	VEL(FPS)	1.215	1.317	1.584	1.750	1.892	2.051
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.036	0.076	0.136	0.195
DEPTH 0.204	FT.	VEL(FPS)	1.317	1.450	1.729	1.901	2.015	2.069
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.036	0.076	0.136	0.195
DEPTH 0.204	FT.	VEL(FPS)	1.245	1.303	1.560	1.718	1.872	1.892
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.017	0.047	0.107	
DEPTH 0.121	FT.	VEL(FPS)	1.103	1.215	1.274	1.537	1.630	

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH 0.238 FT.
DISCHARGE 0.473 CFS
SLOPE 0.002 FT/FT.

RANGE 2.0	IN.	EL.(FT.)	0.005	0.010	0.030	0.066		
DEPTH 0.071	FT.	VEL(FPS)	0.649	0.703	0.933	1.093		
RANGE 12.0	IN.	EL.(FT.)	0.005	0.010	0.030	0.066		
DEPTH 0.071	FT.	VEL(FPS)	0.754	0.828	1.016	1.193		
RANGE 18.0	IN.	EL.(FT.)	0.005	0.010	0.027	0.064		
DEPTH 0.071	FT.	VEL(FPS)	0.768	0.859	1.016	1.196		
RANGE 23.5	IN.	EL.(FT.)	0.005	0.010	0.026	0.063		
DEPTH 0.071	FT.	VEL(FPS)	1.024	1.093	1.280	1.488		
RANGE 24.5	IN.	EL.(FT.)	0.005	0.010	0.028	0.065		
DEPTH 0.071	FT.	VEL(FPS)	1.215	1.230	1.411	1.630		
RANGE 25.5	IN.	EL.(FT.)	0.005	0.010	0.033	0.073	0.151	
DEPTH 0.155	FT.	VEL(FPS)	1.215	1.303	1.537	1.718	1.812	
RANGE 26.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.130	0.227
DEPTH 0.238	FT.	VEL(FPS)	1.215	1.260	1.568	1.832	1.968	1.987
RANGE 27.5	IN.	EL.(FT.)	0.005	0.010	0.034	0.074	0.134	0.231
DEPTH 0.238	FT.	VEL(FPS)	1.260	1.398	1.729	1.959	2.104	2.156
RANGE 30.0	IN.	EL.(FT.)	0.005	0.010	0.034	0.074	0.134	0.231
DEPTH 0.238	FT.	VEL(FPS)	1.168	1.245	1.537	1.760	1.921	2.122
RANGE 32.5	IN.	EL.(FT.)	0.005	0.010	0.031	0.071	0.131	0.228
DEPTH 0.238	FT.	VEL(FPS)	1.230	1.385	1.718	1.921	2.078	2.139
RANGE 33.5	IN.	EL.(FT.)	0.005	0.010	0.026	0.066	0.126	0.223
DEPTH 0.238	FT.	VEL(FPS)	1.230	1.289	1.500	1.685	1.872	2.085
RANGE 34.5	IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.123	
DEPTH 0.155	FT.	VEL(FPS)	1.184	1.289	1.411	1.630	1.696	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH[2] 0.179 FT.
DISCHARGE 0.255 CFS
SLOPE 0.003 FT/FT.

RANGE[1] 2.0 IN.	EL[4].(FT.)	0.005					
DEPTH[3] 0.012 FT.	VEL(FPS)	0.121					
RANGE 12.0 IN.	EL.(FT.)	0.005					
DEPTH 0.012 FT.	VEL(FPS)	0.192					
RANGE 20.0 IN.	EL.(FT.)	0.005					
DEPTH 0.012 FT.	VEL(FPS)	0.227					
RANGE 23.5 IN.	EL.(FT.)	0.005					
DEPTH 0.012 FT.	VEL(FPS)	0.703					
RANGE 24.5 IN.	EL.(FT.)	0.005	0.009				
DEPTH 0.012 FT.	VEL(FPS)	0.607	1.016				
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.061	0.093	
DEPTH 0.096 FT.	VEL(FPS)	1.120	1.200	1.398	1.572	1.641	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.105	0.166
DEPTH 0.179 FT.	VEL(FPS)	1.069	1.200	1.358	1.618	1.852	1.852
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.022	0.057	0.112	0.173
DEPTH 0.179 FT.	VEL(FPS)	1.168	1.184	1.358	1.696	1.978	2.069
RANGE 30.0 IN.	EL.(FT.)	0.005	0.011	0.023	0.058	0.113	0.174
DEPTH 0.179 FT.	VEL(FPS)	1.331	1.475	1.663	1.911	2.223	2.399
RANGE 32.5 IN.	EL.(FT.)	0.005	0.011	0.021	0.058	0.113	0.174
DEPTH 0.179 FT.	VEL(FPS)	1.512	1.607	1.739	2.060	2.232	2.384
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.019	0.054	0.109	0.170
DEPTH 0.179 FT.	VEL(FPS)	1.289	1.345	1.512	1.696	1.921	2.104
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.023	0.053	0.084	
DEPTH 0.096 FT.	VEL(FPS)	1.274	1.358	1.549	1.718	1.674	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

ASYMMETRIC FLOODPLAIN
ASPECT RATIO 2.045
DEPTH 0.198 FT.
DISCHARGE 0.352 CFS
SLOPE 0.003 FT/FT.

RANGE 2.0 IN.	EL.(FT.)	0.005	0.010	0.024			
DEPTH 0.031 FT.	VEL(FPS)	0.526	0.622	0.744			
RANGE 12.0 IN.	EL.(FT.)	0.005	0.010	0.024			
DEPTH 0.031 FT.	VEL(FPS)	0.693	0.756	0.859			
RANGE 18.0 IN.	EL.(FT.)	0.005	0.010	0.022			
DEPTH 0.031 FT.	VEL(FPS)	0.679	0.801	0.889			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.019			
DEPTH 0.031 FT.	VEL(FPS)	1.120	1.230	1.385			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.024			
DEPTH 0.031 FT.	VEL(FPS)	0.921	1.317	1.685			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.110	
DEPTH 0.115 FT.	VEL(FPS)	1.424	1.463	1.674	1.978	2.069	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.120
DEPTH 0.198 FT.	VEL(FPS)	1.274	1.398	1.607	1.842	2.033	2.273
	EL.(FT.)	0.182					
	VEL(FPS)	2.356					
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.024	0.044	0.074	0.124
DEPTH 0.198 FT.	VEL(FPS)	1.331	1.475	1.750	1.940	2.104	2.337
	EL.(FT.)	0.187					
	VEL(FPS)	2.490					
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.027	0.047	0.077	0.127
DEPTH 0.198 FT.	VEL(FPS)	1.411	1.549	1.822	1.996	2.095	2.265
	EL.(FT.)	0.191					
	VEL(FPS)	2.445					
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.025	0.045	0.075	0.125
DEPTH 0.198 FT.	VEL(FPS)	1.525	1.663	1.940	2.113	2.273	2.384
	EL.(FT.)	0.189					
	VEL(FPS)	2.445					
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.120
DEPTH 0.198 FT.	VEL(FPS)	1.411	1.525	1.674	1.832	1.940	2.122
	EL.(FT.)	0.181					
	VEL(FPS)	2.190					
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.050	0.091	
DEPTH 0.115 FT.	VEL(FPS)	1.358	1.437	1.537	1.802	1.802	

ASYMMETRIC FLOODPLAIN

ASPECT RATIO 2.045
DEPTH[2] 0.225 FT.
DISCHARGE 0.480 CFS
SLOPE 0.003 FT/FT.

RANGE[1]	2.0	IN.	:EL.[4](FT.)	0.005	0.012	0.022	0.042		
DEPTH[3]	0.058	FT.	:VEL(FPS)	0.788	0.797	0.889	0.991		
RANGE	12.0	IN.	:EL.(FT.)	0.005	0.016	0.026	0.046		
DEPTH	0.058	FT.	:VEL(FPS)	0.749	0.987	1.083	1.156		
RANGE	18.0	IN.	:EL.(FT.)	0.005	0.016	0.026	0.046		
DEPTH	0.058	FT.	:VEL(FPS)	0.833	1.024	1.120	1.196		
RANGE	23.5	IN.	:EL.(FT.)	0.005	0.009	0.019	0.039		
DEPTH	0.058	FT.	:VEL(FPS)	1.052	1.110	1.364	1.541		
RANGE	24.5	IN.	:EL.(FT.)	0.005	0.018	0.038			
DEPTH	0.058	FT.	:VEL(FPS)	1.251	1.541	1.720			
RANGE	25.5	IN.	:EL.(FT.)	0.005	0.015	0.045	0.085	0.125	
DEPTH	0.142	FT.	:VEL(FPS)	1.385	1.488	1.796	1.959	2.058	
RANGE	26.5	IN.	:EL.(FT.)	0.005	0.012	0.042	0.082	0.122	0.162
DEPTH	0.225	FT.	:VEL(FPS)	1.450	1.500	1.810	1.979	2.182	2.251
			EL.(FT.)	0.202					
			VEL(FPS)	2.284					
RANGE	27.5	IN.	:EL.(FT.)	0.005	0.020	0.050	0.090	0.130	0.170
DEPTH	0.225	FT.	:VEL(FPS)	1.500	1.860	2.097	2.308	2.464	2.553
			EL.(FT.)	0.210					
			VEL(FPS)	2.553					
RANGE	30.0	IN.	:EL.(FT.)	0.005	0.023	0.053	0.093	0.133	0.173
DEPTH	0.225	FT.	:VEL(FPS)	1.450	1.705	1.944	2.151	2.247	2.343
			EL.(FT.)	0.213					
			VEL(FPS)	2.488					
RANGE	32.5	IN.	:EL.(FT.)	0.005	0.025	0.055	0.095	0.135	0.175
DEPTH	0.225	FT.	:VEL(FPS)	1.731	2.060	2.258	2.382	2.498	2.570
			EL.(FT.)	0.215					
			VEL(FPS)	2.570					
RANGE	33.5	IN.	:EL.(FT.)	0.005	0.039	0.079	0.119	0.159	0.199
DEPTH	0.225	FT.	:VEL(FPS)	1.450	1.903	2.038	2.232	2.362	2.3[illegible]8
RANGE	34.5	IN.	:EL.(FT.)	0.005	0.013	0.043	0.083	0.113	
DEPTH	0.142	FT.	:VEL(FPS)	1.430	1.570	1.816	2.045	2.045	

SYMMETRIC FLOODPLAIN

ASPECT RATIO 1.364
DEPTH 0.196 FT.
DISCHARGE 0.181 CFS
SLOPE 0.001 FT/FT.

RANGE	17.0	IN.	:EL.(FT.)	0.005	0.010	0.023			
DEPTH	0.027	FT.	:VEL(FPS)	0.398	0.512	0.550			
RANGE	20.5	IN.	:EL.(FT.)	0.005	0.010	0.023			
DEPTH	0.027	FT.	:VEL(FPS)	0.490	0.543	0.607			
RANGE	23.5	IN.	:EL.(FT.)	0.005	0.010	0.023			
DEPTH	0.027	FT.	:VEL(FPS)	0.607	0.665	0.768			
RANGE	24.5	IN.	:EL.(FT.)	0.005	0.010	0.037			
DEPTH	0.027	FT.	:VEL(FPS)	0.665	0.719	0.931			
RANGE	25.5	IN.	:EL.(FT.)	0.005	0.010	0.032	0.072	0.117	
DEPTH	0.111	FT.	:VEL(FPS)	0.731	0.792	0.921	1.095	1.144	
RANGE	26.5	IN.	:EL.(FT.)	0.005	0.010	0.030	0.075	0.125	0.190
DEPTH	0.194	FT.	:VEL(FPS)	0.622	0.679	0.951	1.112	1.215	1.289
RANGE	27.5	IN.	:EL.(FT.)	0.005	0.010	0.029	0.074	0.124	0.189
DEPTH	0.194	FT.	:VEL(FPS)	0.780	0.837	1.034	1.166	1.267	1.331
RANGE	30.0	IN.	:EL.(FT.)	0.005	0.010	0.032	0.077	0.127	0.191
DEPTH	0.194	FT.	:VEL(FPS)	0.744	0.848	0.970	1.103	1.168	1.317
RANGE	32.5	IN.	:EL.(FT.)	0.005	0.010	0.031	0.076	0.126	0.190
DEPTH	0.194	FT.	:VEL(FPS)	0.804	0.880	1.052	1.184	1.274	1.365
RANGE	33.5	IN.	:EL.(FT.)	0.005	0.010	0.030	0.075	0.125	0.189
DEPTH	0.194	FT.	:VEL(FPS)	0.744	0.815	0.970	1.128	1.222	1.345
RANGE	34.5	IN.	:EL.(FT.)	0.005	0.010	0.030	0.093		
DEPTH	0.111	FT.	:VEL(FPS)	0.880	0.880	0.941	1.103		
RANGE	35.5	IN.	:EL.(FT.)	0.005	0.010	0.025			
DEPTH	0.027	FT.	:VEL(FPS)	0.744	0.792	0.859			
RANGE	36.5	IN.	:EL.(FT.)	0.005	0.010	0.023			
DEPTH	0.027	FT.	:VEL(FPS)	0.622	0.679	0.768			
RANGE	39.5	IN.	:EL.(FT.)	0.005	0.010	0.024			
DEPTH	0.027	FT.	:VEL(FPS)	0.490	0.550	0.622			
RANGE	43.0	IN.	:EL.(FT.)	0.005	0.009	0.023			
DEPTH	0.027	FT.	:VEL(FPS)	0.374	0.394	0.490			

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH[2] 0.221 FT.
DISCHARGE 0.247 CFS
SLOPE 0.001 FT/FT.

RANGE[1] 17.0	IN.	:EL.[4](FT.)	0.005	0.010	0.021	0.046		
DEPTH[3] 0.052	FT.	:VEL(FPS)	0.470	3.553	0.607	0.637		
RANGE 20.5	IN.	:EL.(FT.)	0.005	0.010	0.023	0.046		
DEPTH 0.052	FT.	:VEL(FPS)	0.576	0.601	0.665	0.780		
RANGE 23.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.045		
DEPTH 0.052	FT.	:VEL(FPS)	0.671	0.724	0.792	0.960		
RANGE 24.5	IN.	:EL.(FT.)	0.005	0.010	0.031	0.056		
DEPTH 0.052	FT.	:VEL(FPS)	0.706	0.756	0.941	1.061		
RANGE 25.5	IN.	:EL.(FT.)	0.005	0.010	0.024	0.064	0.114	0.139
DEPTH 0.136	FT.	:VEL(FPS)	0.815	0.837	0.979	1.103	1.192	1.230
RANGE 26.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.047	0.067	0.137
DEPTH 0.219	FT.	:VEL(FPS)	0.693	0.804	0.970	1.168	1.296	1.365
		EL.(FT.)	0.187	0.212				
		VEL(FPS)	1.385	1.385				
RANGE 27.5	IN.	:EL.(FT.)	0.005	0.010	0.021	0.048	0.088	0.130
DEPTH 0.219	FT.	:VEL(FPS)	0.859	0.951	1.069	1.230	1.331	1.411
		EL.(FT.)	0.188	0.213				
		VEL(FPS)	1.450	1.475				
RANGE 30.0	IN.	:EL.(FT.)	0.005	0.010	0.023	0.050	0.090	0.140
DEPTH 0.219	FT.	:VEL(FPS)	0.804	0.870	0.979	1.087	1.168	1.245
		EL.(FT.)	0.190	0.215				
		VEL(FPS)	1.331	1.385				
RANGE 32.5	IN.	:EL.(FT.)	0.005	0.010	0.022	0.049	0.089	0.139
DEPTH 0.219	FT.	:VEL(FPS)	0.921	0.979	1.120	1.245	1.356	1.398
		EL.(FT.)	0.169	0.214				
		VEL(FPS)	1.437	1.450				
RANGE 33.5	IN.	:EL.(FT.)	0.005	0.010	0.019	0.046	0.086	0.136
DEPTH 0.219	FT.	:VEL(FPS)	0.826	0.870	0.911	1.103	1.245	1.303
		EL.(FT.)	0.186	0.211				
		VEL(FPS)	1.345	1.358				
RANGE 34.5	IN.	:EL.(FT.)	0.005	0.010	0.022	0.042	0.092	0.116
DEPTH 0.136	FT.	:VEL(FPS)	0.901	0.911	0.998	1.061	1.160	1.215
RANGE 35.5	IN.	:EL.(FT.)	0.005	0.010	0.024	0.049		
DEPTH 0.052	FT.	:VEL(FPS)	0.756	0.804	0.941	1.069		
RANGE 36.5	IN.	:EL.(FT.)	0.005	0.010	0.021	0.046		
DEPTH 0.052	FT.	:VEL(FPS)	0.679	0.744	0.941	0.951		
RANGE 39.5	IN.	:EL.(FT.)	0.005	0.010	0.023	0.047		
DEPTH 0.052	FT.	:VEL(FPS)	0.583	0.637	0.706	0.780		
RANGE 43.0	IN.	:EL.(FT.)	0.005	0.010	0.024	0.048		
DEPTH 0.052	FT.	:VEL(FPS)	0.460	0.530	0.583	0.622		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH 0.251 FT.
DISCHARGE 0.351 CFS
SLOPE 0.001 FT/FT.

RANGE 17.0	IN.	:EL.(FT.)	0.005	0.010	0.020	0.044	0.077	
DEPTH 0.081	FT.	:VEL(FPS)	0.613	0.667	0.741	0.810	0.891	
RANGE 20.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.044	0.077	
DEPTH 0.081	FT.	:VEL(FPS)	0.657	0.706	0.810	0.923	1.069	
RANGE 23.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.044	0.077	
DEPTH 0.081	FT.	:VEL(FPS)	0.731	0.756	0.870	1.009	1.168	
RANGE 24.5	IN.	:EL.(FT.)	0.005	0.010	0.024	0.056	0.091	
DEPTH 0.081	FT.	:VEL(FPS)	0.815	0.837	0.951	1.120	1.207	
RANGE 25.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.091	0.139
DEPTH 0.165	FT.	:VEL(FPS)	0.826	0.880	0.983	1.136	1.215	1.245
		EL.(FT.)	0.172					
		VEL(FPS)	1.268					
RANGE 26.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.079	0.119
DEPTH 0.248	FT.	:VEL(FPS)	0.651	0.768	0.970	1.222	1.289	1.365
		EL.(FT.)	0.160	0.208	0.241			
		VEL(FPS)	1.385	1.385	1.380			
RANGE 27.5	IN.	:EL.(FT.)	0.005	0.012	0.022	0.052	0.081	0.121
DEPTH 0.248	FT.	:VEL(FPS)	0.870	0.998	1.128	1.345	1.411	1.463
		EL.(FT.)	0.162	0.210	0.243			
		VEL(FPS)	1.500	1.500	1.506			
RANGE 30.0	IN.	:EL.(FT.)	0.005	0.015	0.025	0.055	0.084	0.124
DEPTH 0.248	FT.	:VEL(FPS)	0.846	0.979	1.069	1.237	1.303	1.345
		EL.(FT.)	0.165	0.213	0.246			
		VEL(FPS)	1.411	1.463	1.525			
RANGE 31.5	IN.	:EL.(FT.)	0.005	0.015	0.025	0.055	0.084	0.124
DEPTH 0.248	FT.	:VEL(FPS)	0.921	1.069	1.152	1.303	1.385	1.424
		EL.(FT.)	0.165	0.213	0.246			
		VEL(FPS)	1.488	1.519	1.537			
RANGE 32.5	IN.	:EL.(FT.)	0.005	0.010	0.020	0.050	0.079	0.119
DEPTH 0.248	FT.	:VEL(FPS)	0.979	1.069	1.176	1.331	1.424	1.475
		EL.(FT.)	0.160	0.208	0.241			
		VEL(FPS)	1.500	1.519	1.519			
RANGE 33.5	IN.	:EL.(FT.)	0.005	0.010	0.017	0.047	0.076	0.116
DEPTH 0.248	FT.	:VEL(FPS)	0.870	0.960	1.034	1.230	1.317	1.385
		EL.(FT.)	0.157	0.205	0.238			
		VEL(FPS)	1.411	1.411	1.424			
RANGE 34.5	IN.	:EL.(FT.)	0.005	0.010	0.031	0.072	0.120	0.145
DEPTH 0.165	FT.	:VEL(FPS)	0.941	0.960	1.087	1.200	1.245	1.303
RANGE 35.5	IN.	:EL.(FT.)	0.005	0.012	0.022	0.046	0.079	
DEPTH 0.081	FT.	:VEL(FPS)	0.785	0.891	0.979	1.120	1.207	
RANGE 36.5	IN.	:EL.(FT.)	0.005	0.008	0.018	0.042	0.075	
DEPTH 0.081	FT.	:VEL(FPS)	0.731	0.759	0.901	1.034	1.168	
RANGE 39.5	IN.	:EL.(FT.)	0.005	0.011	0.021	0.045	0.078	
DEPTH 0.081	FT.	:VEL(FPS)	0.693	0.744	0.837	0.931	1.052	
RANGE 43.0	IN.	:EL.(FT.)	0.005	0.012	0.022	0.046	0.079	
DEPTH 0.081	FT.	:VEL(FPS)	0.600	0.671	0.724	0.792	0.826	

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SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH² 0.193 FT.
DISCHARGE 0.224 CFS
SLOPE 0.002 FT/FT.

RANGE¹ 17.0 IN. :EL.⁴(FT.)   0.005  0.010  0.017
DEPTH³ 0.026 FT. :VEL(FPS)   0.374  0.470  0.515

RANGE 20.5  IN. :EL.(FT.)    0.005  0.010  0.016
DEPTH 0.026 FT. :VEL(FPS)    0.450  0.536  0.592

RANGE 23.5  IN. :EL.(FT.)    0.005  0.010  0.016
DEPTH 0.026 FT. :VEL(FPS)    0.665  0.719  0.792

RANGE 24.5  IN. :EL.(FT.)    0.005  0.010  0.029
DEPTH 0.026 FT. :VEL(FPS)    0.859  0.931  1.103

RANGE 25.5  IN. :EL.(FT.)    0.005  0.010  0.021  0.051  0.106
DEPTH 0.110 FT. :VEL(FPS)    0.880  0.979  1.095  1.303  1.437

RANGE 26.5  IN. :EL.(FT.)    0.005  0.010  0.023  0.053  0.113  0.185
DEPTH 0.193 FT. :VEL(FPS)    0.792  0.880  1.007  1.358  1.549  1.685

RANGE 27.5  IN. :EL.(FT.)    0.005  0.010  0.024  0.054  0.114  0.187
DEPTH 0.193 FT. :VEL(FPS)    0.979  1.052  1.296  1.450  1.652  1.817

RANGE 30.0  IN. :EL.(FT.)    0.005  0.010  0.028  0.058  0.118  0.190
DEPTH 0.193 FT. :VEL(FPS)    0.979  1.043  1.274  1.424  1.596  1.760

RANGE 32.5  IN. :EL.(FT.)    0.005  0.010  0.025  0.055  0.115  0.187
DEPTH 0.193 FT. :VEL(FPS)    0.998  1.136  1.317  1.488  1.663  1.781

RANGE 33.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.050  0.110  0.182
DEPTH 0.193 FT. :VEL(FPS)    0.941  1.016  1.136  1.303  1.488  1.630

RANGE 34.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.037  0.094
DEPTH 0.110 FT. :VEL(FPS)    1.034  1.069  1.136  1.200  1.385

RANGE 35.5  IN. :EL.(FT.)    0.005  0.010  0.023
DEPTH 0.026 FT. :VEL(FPS)    0.880  0.921  1.007

RANGE 36.5  IN. :EL.(FT.)    0.005  0.010  0.019
DEPTH 0.026 FT. :VEL(FPS)    0.719  0.792  0.859

RANGE 39.5  IN. :EL.(FT.)    0.005  0.010  0.023
DEPTH 0.026 FT. :VEL(FPS)    0.470  0.543  0.607

RANGE 43.0  IN. :EL.(FT.)    0.005  0.010  0.025
DEPTH 0.026 FT. :VEL(FPS)    0.384  0.450  0.493

***NOTE
    1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
    2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
    3. DEPTH OF FLOW AT A GIVEN RANGE.
    4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH 0.219 FT.
DISCHARGE 0.320 CFS
SLOPE 0.002 FT/FT.

RANGE 17.0  IN. :EL.(FT.)    0.005  0.010  0.020  0.043
DEPTH 0.052 FT. :VEL(FPS)    0.543  0.637  0.786  0.768

RANGE 20.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.043
DEPTH 0.052 FT. :VEL(FPS)    0.637  0.696  0.786  0.911

RANGE 23.5  IN. :EL.(FT.)    0.005  0.010  0.019  0.043
DEPTH 0.052 FT. :VEL(FPS)    0.705  0.837  0.960  1.168

RANGE 24.5  IN. :EL.(FT.)    0.005  0.010  0.029  0.053
DEPTH 0.052 FT. :VEL(FPS)    0.941  1.025  1.200  1.317

RANGE 25.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.050  0.090  0.133
DEPTH 0.136 FT. :VEL(FPS)    0.979  1.069  1.176  1.385  1.549  1.572

RANGE 26.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.040  0.070  0.110
DEPTH 0.219 FT. :VEL(FPS)    0.837  0.960  1.168  1.431  1.584  1.718
                 EL.(FT.)    0.160  0.209
                 VEL(FPS)    1.817  1.817

RANGE 27.5  IN. :EL.(FT.)    0.005  0.010  0.021  0.041  0.071  0.111
DEPTH 0.219 FT. :VEL(FPS)    1.069  1.200  1.411  1.572  1.729  1.852
                 EL.(FT.)    0.161  0.210
                 VEL(FPS)    1.930  1.949

RANGE 30.0  IN. :EL.(FT.)    0.005  0.010  0.024  0.044  0.074  0.114
DEPTH 0.219 FT. :VEL(FPS)    1.007  1.103  1.260  1.392  1.488  1.596
                 EL.(FT.)    0.164  0.213
                 VEL(FPS)    1.718  1.832

RANGE 32.5  IN. :EL.(FT.)    0.005  0.010  0.022  0.042  0.072  0.112
DEPTH 0.219 FT. :VEL(FPS)    1.152  1.260  1.424  1.572  1.718  1.852
                 EL.(FT.)    0.162  0.211
                 VEL(FPS)    1.930  1.940

RANGE 33.5  IN. :EL.(FT.)    0.005  0.010  0.019  0.039  0.069  0.109
DEPTH 0.219 FT. :VEL(FPS)    1.025  1.103  1.215  1.450  1.607  1.707
                 EL.(FT.)    0.159  0.206
                 VEL(FPS)    1.802  1.822

RANGE 34.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.037  0.077  0.120
DEPTH 0.136 FT. :VEL(FPS)    1.136  1.184  1.274  1.358  1.488  1.537

RANGE 35.5  IN. :EL.(FT.)    0.005  0.010  0.022  0.046
DEPTH 0.052 FT. :VEL(FPS)    0.921  1.016  1.152  1.331

RANGE 36.5  IN. :EL.(FT.)    0.005  0.010  0.020  0.043
DEPTH 0.052 FT. :VEL(FPS)    0.815  0.901  0.998  1.152

RANGE 39.5  IN. :EL.(FT.)    0.005  0.010  0.022  0.045
DEPTH 0.052 FT. :VEL(FPS)    0.637  0.719  0.815  0.921

RANGE 43.0  IN. :EL.(FT.)    0.005  0.010  0.024  0.047
DEPTH 0.052 FT. :VEL(FPS)    0.533  0.595  0.676  0.744
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                     SYMMETRIC FLOODPLAIN
                      ASPECT RATIO 1.364
                      DEPTH[2] 0.237 FT.
                      DISCHARGE 0.398 CFS
                      SLOPE 0.002 FT/FT.

RANGE[1] 17.0  IN. :EL[4].(FT.)   0.005  0.010  0.020  0.060
DEPTH[3] 0.070 FT. :VEL(FPS)     0.679  0.773  0.863  0.970

RANGE 20.5  IN. :EL.(FT.)     0.005  0.010  0.029  0.061
DEPTH 0.070 FT. :VEL(FPS)     0.719  0.819  0.979  1.112

RANGE 23.5  IN. :EL.(FT.)     0.005  0.010  0.029  0.061
DEPTH 0.070 FT. :VEL(FPS)     0.837  0.911  1.120  1.274

RANGE 24.5  IN. :EL.(FT.)     0.005  0.010  0.041  0.073
DEPTH 0.070 FT. :VEL(FPS)     0.998  1.052  1.303  1.398

RANGE 25.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.040  0.080  0.157
DEPTH 0.154 FT. :VEL(FPS)     1.016  1.052  1.215  1.411  1.549  1.618

RANGE 26.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.040  0.070  0.120
DEPTH 0.237 FT. :VEL(FPS)     0.911  0.989  1.230  1.500  1.674  1.792
                 EL.(FT.)     0.170  0.228
                 VEL(FPS)     1.832  1.822

RANGE 27.5  IN. :EL.(FT.)     0.005  0.010  0.022  0.042  0.072  0.122
DEPTH 0.237 FT. :VEL(FPS)     1.087  1.176  1.405  1.624  1.781  1.901
                 EL.(FT.)     0.172  0.229
                 VEL(FPS)     1.949  1.968

RANGE 30.0  IN. :EL.(FT.)     0.005  0.010  0.023  0.043  0.073  0.123
DEPTH 0.237 FT. :VEL(FPS)     1.052  1.144  1.310  1.457  1.578  1.680
                 EL.(FT.)     0.173  0.231
                 VEL(FPS)     1.802  1.921

RANGE 32.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.040  0.070  0.120
DEPTH 0.237 FT. :VEL(FPS)     1.168  1.303  1.463  1.641  1.781  1.911
                 EL.(FT.)     0.170  0.228
                 VEL(FPS)     1.959  1.978

RANGE 33.5  IN. :EL.(FT.)     0.005  0.010  0.018  0.038  0.068  0.118
DEPTH 0.237 FT. :VEL(FPS)     1.034  1.128  1.274  1.475  1.652  1.802
                 EL.(FT.)     0.168  0.225
                 VEL(FPS)     1.852  1.852

RANGE 34.5  IN. :EL.(FT.)     0.005  0.010  0.025  0.075  0.132
DEPTH 0.154 FT. :VEL(FPS)     1.152  1.215  1.345  1.500  1.607

RANGE 35.5  IN. :EL.(FT.)     0.005  0.010  0.033  0.065
DEPTH 0.070 FT. :VEL(FPS)     0.979  1.069  1.296  1.411

RANGE 36.5  IN. :EL.(FT.)     0.005  0.010  0.029  0.060
DEPTH 0.070 FT. :VEL(FPS)     0.891  2.979  1.168  1.317

RANGE 39.5  IN. :EL.(FT.)     0.005  0.010  0.031  0.062
DEPTH 0.070 FT. :VEL(FPS)     0.768  0.859  1.025  1.128

RANGE 43.0  IN. :EL.(FT.)     0.005  0.010  0.033  0.064
DEPTH 0.070 FT. :VEL(FPS)     0.665  0.665  0.848  0.931
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                     SYMMETRIC FLOODPLAIN
                      ASPECT RATIO 1.364
                      DEPTH 0.182 FT.
                      DISCHARGE 0.246 CFS
                      SLOPE 0.003 FT/FT.

RANGE 17.0  IN. :EL.(FT.)     0.005  0.011
DEPTH 0.013 FT. :VEL(FPS)     0.327  0.369

RANGE 20.5  IN. :EL.(FT.)     0.005  0.011
DEPTH 0.013 FT. :VEL(FPS)     0.450  0.482

RANGE 23.5  IN. :EL.(FT.)     0.005  0.010
DEPTH 0.013 FT. :VEL(FPS)     0.540  0.622

RANGE 24.5  IN. :EL.(FT.)     0.005  0.010  0.020
DEPTH 0.013 FT. :VEL(FPS)     0.804  0.921  1.112

RANGE 25.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.058  0.105
DEPTH 0.097 FT. :VEL(FPS)     0.960  1.034  1.200  1.488  1.560

RANGE 26.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.050  0.108  0.175
DEPTH 0.180 FT. :VEL(FPS)     0.837  0.998  1.303  1.652  1.862  1.930

RANGE 27.5  IN. :EL.(FT.)     0.005  0.010  0.021  0.051  0.109  0.176
DEPTH 0.180 FT. :VEL(FPS)     1.152  1.260  1.525  1.781  2.078  2.173

RANGE 30.0  IN. :EL.(FT.)     0.005  0.010  0.020  0.050  0.108  0.175
DEPTH 0.180 FT. :VEL(FPS)     1.168  1.289  1.475  1.729  1.968  2.156

RANGE 32.5  IN. :EL.(FT.)     0.005  0.010  0.018  0.048  0.106  0.173
DEPTH 0.180 FT. :VEL(FPS)     1.176  1.289  1.463  1.771  2.051  2.051

RANGE 33.5  IN. :EL.(FT.)     0.005  0.010  0.017  0.047  0.105  0.171
DEPTH 0.180 FT. :VEL(FPS)     1.052  1.168  1.303  1.630  1.802  1.750

RANGE 34.5  IN. :EL.(FT.)     0.005  0.010  0.020  0.040  0.086
DEPTH 0.097 FT. :VEL(FPS)     1.136  1.136  1.215  1.331  1.463

RANGE 35.5  IN. :EL.(FT.)     0.005  0.011
DEPTH 0.013 FT. :VEL(FPS)     0.941  1.016

RANGE 36.5  IN. :EL.(FT.)     0.005  0.010
DEPTH 0.013 FT. :VEL(FPS)     0.706  0.719

RANGE 39.5  IN. :EL.(FT.)     0.005  0.010
DEPTH 0.013 FT. :VEL(FPS)     0.333  0.384

RANGE 43.0  IN. :EL.(FT.)     0.005  0.012
DEPTH 0.013 FT. :VEL(FPS)     0.219  0.258
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***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH[2] 0.204 FT.
DISCHARGE 0.337 CFS
SLOPE 0.003 FT/FT.

RANGE[1] 17.0 IN.	DEPTH[3] 0.037 FT.	EL.[4](FT.)	0.005	0.010	0.030			
		VEL(FPS)	0.607	0.693	0.768			
RANGE 20.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.029			
		VEL(FPS)	0.665	0.756	0.901			
RANGE 23.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.029			
		VEL(FPS)	0.848	0.978	1.245			
RANGE 24.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.020	0.045		
		VEL(FPS)	1.152	1.207	1.345	1.549		
RANGE 25.5 IN.	DEPTH 0.121 FT.	EL.(FT.)	0.005	0.010	0.020	0.040	0.075	0.124
		VEL(FPS)	1.184	1.317	1.500	1.674	1.862	1.968
RANGE 26.5 IN.	DEPTH 0.204 FT.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.130
		VEL(FPS)	0.998	1.136	1.444	1.696	1.968	2.129
		EL.(FT.)	0.196					
		VEL(FPS)	2.240					
RANGE 27.5 IN.	DEPTH 0.204 FT.	EL.(FT.)	0.005	0.010	0.021	0.041	0.081	0.131
		VEL(FPS)	1.200	1.358	1.635	1.852	2.078	2.281
		EL.(FT.)	0.197					
		VEL(FPS)	2.376					
RANGE 30.0 IN.	DEPTH 0.204 FT.	EL.(FT.)	0.005	0.010	0.023	0.043	0.083	0.133
		VEL(FPS)	1.200	1.317	1.512	1.685	1.862	2.010
		EL.(FT.)	0.198					
		VEL(FPS)	2.207					
RANGE 32.5 IN.	DEPTH 0.204 FT.	EL.(FT.)	0.005	0.010	0.023	0.043	0.083	0.133
		VEL(FPS)	1.331	1.475	1.696	1.882	2.104	2.256
		EL.(FT.)	0.198					
		VEL(FPS)	2.352					
RANGE 33.5 IN.	DEPTH 0.204 FT.	EL.(FT.)	0.005	0.010	0.022	0.042	0.082	0.132
		VEL(FPS)	1.152	1.245	1.500	1.685	1.949	2.139
		EL.(FT.)	0.197					
		VEL(FPS)	2.207					
RANGE 34.5 IN.	DEPTH 0.121 FT.	EL.(FT.)	0.005	0.010	0.026	0.061	0.109	
		VEL(FPS)	1.358	1.411	1.572	1.802	1.882	
RANGE 35.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.034			
		VEL(FPS)	1.136	1.260	1.512			
RANGE 36.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.030			
		VEL(FPS)	0.979	1.087	1.274			
RANGE 39.5 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.033			
		VEL(FPS)	0.719	0.792	0.921			
RANGE 43.0 IN.	DEPTH 0.037 FT.	EL.(FT.)	0.005	0.010	0.035			
		VEL(FPS)	0.576	0.651	0.719			

SYMMETRIC FLOODPLAIN
ASPECT RATIO 1.364
DEPTH 0.22 FT.
DISCHARGE 0.409 CFS
SLOPE 0.003 FT/FT.

RANGE 17.0 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.020	0.048		
		VEL(FPS)	0.773	0.837	0.925	1.016		
RANGE 20.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.018	0.046		
		VEL(FPS)	0.815	0.911	0.998	1.144		
RANGE 23.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.017	0.046		
		VEL(FPS)	0.931	1.016	1.168	1.411		
RANGE 24.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.020	0.040	0.063	
		VEL(FPS)	1.136	1.200	1.303	1.537	1.652	
RANGE 25.5 IN.	DEPTH 0.140 FT.	EL.(FT.)	0.005	0.010	0.020	0.041	0.081	0.143
		VEL(FPS)	1.184	1.274	1.475	1.665	1.842	1.968
RANGE 26.5 IN.	DEPTH 0.223 FT.	EL.(FT.)	0.005	0.010	0.020	0.040	0.070	0.110
		VEL(FPS)	1.034	1.289	1.560	1.842	2.015	2.165
		EL.(FT.)	0.160	0.213				
		VEL(FPS)	2.240	2.240				
RANGE 27.5 IN.	DEPTH 0.223 FT.	EL.(FT.)	0.005	0.010	0.022	0.042	0.072	0.112
		VEL(FPS)	1.303	1.488	1.760	1.959	2.156	2.289
		EL.(FT.)	0.162	0.215				
		VEL(FPS)	2.399	2.391				
RANGE 30.0 IN.	DEPTH 0.223 FT.	EL.(FT.)	0.005	0.010	0.024	0.044	0.074	0.114
		VEL(FPS)	1.281	1.398	1.607	1.760	1.906	2.051
		EL.(FT.)	0.164	0.216				
		VEL(FPS)	2.207	2.337				
RANGE 32.5 IN.	DEPTH 0.223 FT.	EL.(FT.)	0.005	0.010	0.021	0.041	0.071	0.111
		VEL(FPS)	1.475	1.596	1.802	1.978	2.165	2.321
		EL.(FT.)	0.161	0.213				
		VEL(FPS)	2.384	2.399				
RANGE 33.5 IN.	DEPTH 0.223 FT.	EL.(FT.)	0.005	0.010	0.018	0.038	0.068	0.108
		VEL(FPS)	1.252	1.437	1.584	1.802	2.015	2.148
		EL.(FT.)	0.158	0.210				
		VEL(FPS)	2.223	2.223				
RANGE 34.5 IN.	DEPTH 0.140 FT.	EL.(FT.)	0.005	0.010	0.020	0.039	0.079	0.125
		VEL(FPS)	1.450	1.486	1.584	1.696	1.862	1.949
RANGE 35.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.019	0.047		
		VEL(FPS)	1.168	1.303	1.463	1.641		
RANGE 36.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.018	0.046		
		VEL(FPS)	1.052	1.095	1.192	1.424		
RANGE 39.5 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.021	0.049		
		VEL(FPS)	0.880	0.941	1.043	1.176		
RANGE 43.0 IN.	DEPTH 0.056 FT.	EL.(FT.)	0.005	0.010	0.025	0.053		
		VEL(FPS)	0.693	0.780	0.901	0.989		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

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SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.142 FT.
DISCHARGE 0.101 CFS
SLOPE 0.001 FT/FT.

RANGE 25.5 IN. :EL.(FT.)   0.005 0.010 0.029 0.052
DEPTH 0.059 FT. :VEL(FPS)  0.607 0.665 0.805 0.382

RANGE 26.5 IN. :EL.(FT.)   0.005 0.018 0.037 0.067 0.097 0.135
DEPTH 0.142 FT. :VEL(FPS)  0.595 0.708 0.868 0.987 1.045 1.075

RANGE 27.5 IN. :EL.(FT.)   0.005 0.010 0.033 0.063 0.093 0.137
DEPTH 0.142 FT. :VEL(FPS)  0.682 0.739 0.949 1.093 1.152 1.218

RANGE 30.0 IN. :EL.(FT.)   0.005 0.010 0.033 0.063 0.093 0.137
DEPTH 0.142 FT. :VEL(FPS)  0.744 0.792 0.960 1.061 1.122 1.200

RANGE 32.5 IN. :EL.(FT.)   0.005 0.010 0.038 0.068 0.098 0.142
DEPTH 0.142 FT. :VEL(FPS)  0.744 0.744 0.981 1.135 1.184 1.212

RANGE 33.5 IN. :EL.(FT.)   0.005 0.012 0.037 0.067 0.097 0.136
DEPTH 0.142 FT. :VEL(FPS)  0.604 0.625 0.872 0.917 0.949 1.020

RANGE 34.5 IN. :EL.(FT.)   0.005 0.010 0.021 0.041
DEPTH 0.059 FT. :VEL(FPS)  0.560 0.634 0.708 0.734
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.160 FT.
DISCHARGE 0.146 CFS
SLOPE 0.002 FT/FT.
STATION 0.

RANGE 25.5 IN. :EL.(FT.)   0.005 0.010 0.030 0.071
DEPTH 0.077 FT. :VEL(FPS)  0.808 0.808 0.998 1.176

RANGE 26.5 IN. :EL.(FT.)   0.005 0.010 0.030 0.070 0.109 0.151
DEPTH 0.160 FT. :VEL(FPS)  0.683 0.716 1.052 1.289 1.398 1.431

RANGE 27.5 IN. :EL.(FT.)   0.005 0.010 0.031 0.071 0.110 0.152
DEPTH 0.160 FT. :VEL(FPS)  0.900 0.941 1.230 1.398 1.512 1.572

RANGE 30.0 IN. :EL.(FT.)   0.005 0.010 0.033 0.073 0.112 0.153
DEPTH 0.160 FT. :VEL(FPS)  0.921 1.007 1.215 1.378 1.475 1.560

RANGE 32.5 IN. :EL.(FT.)   0.005 0.010 0.031 0.071 0.110 0.151
DEPTH 0.160 FT. :VEL(FPS)  0.874 0.941 1.245 1.431 1.512 1.549

RANGE 33.5 IN. :EL.(FT.)   0.005 0.010 0.029 0.069 0.108 0.150
DEPTH 0.160 FT. :VEL(FPS)  0.725 0.763 1.034 1.222 1.308 1.345

RANGE 34.5 IN. :EL.(FT.)   0.005 0.010 0.017 0.059
DEPTH 0.077 FT. :VEL(FPS)  0.736 0.768 0.842 1.069
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***NOTE
   1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
   2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
   3. DEPTH OF FLOW AT A GIVEN RANGE.
   4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.202 FT.
DISCHARGE 0.186 CFS
SLOPE 0.001 FT/FT.

RANGE 10.0 IN. :EL.(FT.)   0.005 0.010 0.015
DEPTH 0.034 FT. :VEL(FPS)  0.354 0.359 0.394

RANGE 16.5 IN. :EL.(FT.)   0.005 0.010 0.021
DEPTH 0.034 FT. :VEL(FPS)  0.434 0.459 0.508

RANGE 23.5 IN. :EL.(FT.)   0.005 0.010 0.021
DEPTH 0.034 FT. :VEL(FPS)  0.438 0.470 0.592

RANGE 24.5 IN. :EL.(FT.)   0.005 0.010 0.029
DEPTH 0.034 FT. :VEL(FPS)  0.576 0.601 0.744

RANGE 25.5 IN. :EL.(FT.)   0.005 0.010 0.055 0.107
DEPTH 0.119 FT. :VEL(FPS)  0.622 0.682 0.893 1.011

RANGE 26.5 IN. :EL.(FT.)   0.005 0.010 0.030 0.050 0.079 0.124
DEPTH 0.202 FT. :VEL(FPS)  0.654 0.714 0.901 0.974 1.027 1.127
                 EL.(FT.)  0.176
                 VEL(FPS)  1.164

RANGE 27.5 IN. :EL.(FT.)   0.005 0.010 0.038 0.058 0.087 0.132
DEPTH 0.202 FT. :VEL(FPS)  0.768 0.817 1.013 1.031 1.165 1.224
                 EL.(FT.)  0.181
                 VEL(FPS)  1.268

RANGE 30.0 IN. :EL.(FT.)   0.005 0.010 0.039 0.059 0.088 0.133
DEPTH 0.202 FT. :VEL(FPS)  0.698 0.775 0.876 0.981 1.009 1.087
                 EL.(FT.)  0.182
                 VEL(FPS)  1.172

RANGE 32.5 IN. :EL.(FT.)   0.005 0.010 0.041 0.061 0.090 0.135
DEPTH 0.202 FT. :VEL(FPS)  0.711 0.790 1.024 1.097 1.140 1.203
                 EL.(FT.)  0.185
                 VEL(FPS)  1.233

RANGE 33.5 IN. :EL.(FT.)   0.005 0.010 0.037 0.057 0.086 0.131
DEPTH 0.202 FT. :VEL(FPS)  0.682 0.719 0.931 1.016 1.103 1.156
                 EL.(FT.)  0.181
                 VEL(FPS)  1.162

RANGE 34.5 IN. :EL.(FT.)   0.005 0.010 0.055 0.105
DEPTH 0.119 FT. :VEL(FPS)  0.698 0.763 0.941 1.009

RANGE 35.5 IN. :EL.(FT.)   0.005 0.010 0.020
DEPTH 0.034 FT. :VEL(FPS)  0.598 0.637 0.654

RANGE 36.5 IN. :EL.(FT.)   0.005 0.010 0.020
DEPTH 0.034 FT. :VEL(FPS)  0.501 0.523 0.550

RANGE 43.5 IN. :EL.(FT.)   0.005 0.010 0.021
DEPTH 0.034 FT. :VEL(FPS)  0.430 0.446 0.519

RANGE 49.5 IN. :EL.(FT.)   0.005 0.010 0.022
DEPTH 0.034 FT. :VEL(FPS)  0.369 0.389 0.470
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                    SYMMETRIC FLOODPLAIN
                     ASPECT RATIO 2.636
                     DEPTH[2] 0.233 FT.
                     DISCHARGE 0.307 CFS
                     SLOPE 0.001 FT/FT.

RANGE[1] 10.0 IN. :EL[4].(FT.)   0.005  0.010  0.032  0.045
DEPTH[3] 0.266 FT. :VEL(FPS)     0.486  0.523  0.622  0.654

RANGE 16.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.054
DEPTH 0.066 FT. :VEL(FPS)   0.493  0.550  0.682  0.790

RANGE 23.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.051
DEPTH 0.066 FT. :VEL(FPS)   0.547  0.616  0.797  0.897

RANGE 24.5  IN. :EL.(FT.)   0.005  0.010  0.038  0.060
DEPTH 0.066 FT. :VEL(FPS)   0.619  0.687  0.895  0.994

RANGE 25.5  IN. :EL.(FT.)   0.005  0.010  0.034  0.084  0.146
DEPTH 0.150 FT. :VEL(FPS)   0.734  0.766  0.882  1.059  1.136

RANGE 26.5  IN. :EL.(FT.)   0.005  0.011  0.036  0.076  0.136  0.217
DEPTH 0.233 FT. :VEL(FPS)   0.576  0.628  0.945  1.136  1.251  1.274

RANGE 27.5  IN. :EL.(FT.)   0.005  0.013  0.038  0.078  0.138  0.220
DEPTH 0.233 FT. :VEL(FPS)   0.763  0.889  1.103  1.239  1.311  1.372

RANGE 30.0  IN. :EL.(FT.)   0.005  0.012  0.037  0.077  0.137  0.219
DEPTH 0.233 FT. :VEL(FPS)   0.759  0.806  0.991  1.110  1.242  1.334

RANGE 32.5  IN. :EL.(FT.)   0.005  0.012  0.037  0.077  0.137  0.219
DEPTH 0.233 FT. :VEL(FPS)   0.768  0.859  1.103  1.221  1.336  1.361

RANGE 33.5  IN. :EL.(FT.)   0.005  0.010  0.035  0.075  0.135  0.217
DEPTH 0.233 FT. :VEL(FPS)   0.601  0.637  0.905  1.120  1.200  1.221

RANGE 34.5  IN. :EL.(FT.)   0.005  0.010  0.053  0.135
DEPTH 0.150 FT. :VEL(FPS)   0.604  0.687  0.983  1.102

RANGE 35.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.051
DEPTH 0.066 FT. :VEL(FPS)   0.631  0.693  0.850  0.953

RANGE 36.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.051
DEPTH 0.066 FT. :VEL(FPS)   0.579  0.665  0.778  0.876

RANGE 43.5  IN. :EL.(FT.)   0.005  0.010  0.031  0.053
DEPTH 0.066 FT. :VEL(FPS)   0.550  0.592  0.731  0.771

RANGE 49.5  IN. :EL.(FT.)   0.005  0.010  0.028  0.048
DEPTH 0.066 FT. :VEL(FPS)   0.425  0.505  0.657  0.698

***NOTE
    1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
    2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
    3. DEPTH OF FLOW AT A GIVEN RANGE.
    4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.
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                    SYMMETRIC FLOODPLAIN
                     ASPECT RATIO 2.636
                     DEPTH 0.232 FT.
                     DISCHARGE 0.394 CFS
                     SLOPE 0.002 FT/FT.

RANGE 10.0  IN. :EL.(FT.)   0.005  0.010  0.030  0.046
DEPTH 0.065 FT. :VEL(FPS)   0.579  0.618  0.756  0.804

RANGE 16.5  IN. :EL.(FT.)   0.005  0.010  0.030  0.055
DEPTH 0.065 FT. :VEL(FPS)   0.695  0.759  0.882  1.004

RANGE 23.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.054
DEPTH 0.065 FT. :VEL(FPS)   0.768  0.848  1.016  1.168

RANGE 24.5  IN. :EL.(FT.)   0.005  0.010  0.044  0.069
DEPTH 0.065 FT. :VEL(FPS)   0.804  0.921  1.192  1.296

RANGE 25.5  IN. :EL.(FT.)   0.005  0.010  0.030  0.070  0.127  0.152
DEPTH 0.149 FT. :VEL(FPS)   0.870  0.901  1.160  1.365  1.450  1.475

RANGE 26.5  IN. :EL.(FT.)   0.005  0.010  0.030  0.060  0.098  0.138
DEPTH 0.232 FT. :VEL(FPS)   0.826  0.891  1.215  1.450  1.584  1.641
                 EL.(FT.)   0.195  0.220
                 VEL(FPS)   1.677  1.679

RANGE 27.5  IN. :EL.(FT.)   0.005  0.010  0.032  0.062  0.100  0.140
DEPTH 0.232 FT. :VEL(FPS)   0.998  1.061  1.405  1.590  1.691  1.760
                 EL.(FT.)   0.197  0.222
                 VEL(FPS)   1.832  1.827

RANGE 30.0  IN. :EL.(FT.)   0.005  0.010  0.034  0.064  0.102  0.142
DEPTH 0.232 FT. :VEL(FPS)   0.960  1.052  1.317  1.437  1.549  1.613
                 EL.(FT.)   0.199  0.224
                 VEL(FPS)   1.750  1.792

RANGE 32.5  IN. :EL.(FT.)   0.005  0.010  0.030  0.060  0.098  0.138
DEPTH 0.232 FT. :VEL(FPS)   0.998  1.136  1.393  1.601  1.696  1.766
                 EL.(FT.)   0.195  0.220
                 VEL(FPS)   1.792  1.802

RANGE 33.5  IN. :EL.(FT.)   0.005  0.010  0.028  0.058  0.096  0.136
DEPTH 0.232 FT. :VEL(FPS)   0.819  0.921  1.136  1.398  1.549  1.596
                 EL.(FT.)   0.193  0.218
                 VEL(FPS)   1.618  1.630

RANGE 34.5  IN. :EL.(FT.)   0.005  0.010  0.050  0.107  0.132
DEPTH 0.149 FT. :VEL(FPS)   0.901  0.911  1.184  1.385  1.398

RANGE 35.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.054
DEPTH 0.065 FT. :VEL(FPS)   0.880  0.960  1.136  1.252

RANGE 36.5  IN. :EL.(FT.)   0.005  0.010  0.028  0.053
DEPTH 0.065 FT. :VEL(FPS)   0.780  0.849  1.034  1.160

RANGE 43.5  IN. :EL.(FT.)   0.005  0.010  0.029  0.054
DEPTH 0.065 FT. :VEL(FPS)   0.731  0.799  0.911  1.016

RANGE 50.0  IN. :EL.(FT.)   0.005  0.009
DEPTH 0.065 FT. :VEL(FPS)   0.675  0.675
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH[2] 0.190 FT.
DISCHARGE 0.205 CFS
SLOPE 0.002 FT/FT.

RANGE[1] 10.0 IN.	EL.[4](FT.)	0.005	0.010	0.012			
DEPTH[3] 0.023 FT.	VEL(FPS)	0.219	0.219	0.235			
RANGE 16.5 IN.	EL.(FT.)	0.005	0.010	0.014			
DEPTH 0.023 FT.	VEL(FPS)	0.374	0.472	0.490			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.014			
DEPTH 0.023 FT.	VEL(FPS)	0.675	0.724	0.604			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.029			
DEPTH 0.029 FT.	VEL(FPS)	0.891	0.921	1.144			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.111	
DEPTH 0.111 FT.	VEL(FPS)	0.792	0.837	1.052	1.274	1.424	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.058	0.098	0.138
DEPTH 0.190 FT.	VEL(FPS)	0.731	0.815	1.120	1.281	1.424	1.506
	EL.(FT.)	0.179					
	VEL(FPS)	1.596					
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.059	0.099	0.139
DEPTH 0.190 FT.	VEL(FPS)	0.859	0.979	1.245	1.411	1.560	1.652
	EL.(FT.)	0.180					
	VEL(FPS)	1.750					
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.035	0.063	0.103	0.143
DEPTH 0.190 FT.	VEL(FPS)	0.931	0.998	1.289	1.358	1.475	1.607
	EL.(FT.)	0.185					
	VEL(FPS)	1.696					
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.032	0.060	0.100	0.140
DEPTH 0.190 FT.	VEL(FPS)	0.901	0.998	1.274	1.463	1.572	1.652
	EL.(FT.)	0.181					
	VEL(FPS)	1.696					
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.057	0.097	0.137
DEPTH 0.190 FT.	VEL(FPS)	0.756	0.826	1.087	1.260	1.358	1.411
	EL.(FT.)	0.177					
	VEL(FPS)	1.488					
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.047	0.088		
DEPTH 0.107 FT.	VEL(FPS)	0.792	0.837	1.103	1.215		
RANGE 35.5 IN.	EL.(FT.)	0.005	0.010	0.014			
DEPTH 0.023 FT.	VEL(FPS)	0.768	0.826	0.880			
RANGE 36.5 IN.	EL.(FT.)	0.005	0.010	0.015			
DEPTH 0.023 FT.	VEL(FPS)	0.576	0.628	0.682			
RANGE 43.5 IN.	EL.(FT.)	0.005	0.010	0.015			
DEPTH 0.023 FT.	VEL(FPS)	0.394	0.448	0.490			
RANGE 49.5 IN.	EL.(FT.)	0.005					
DEPTH 0.023 FT.	VEL(FPS)	0.407					

SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.160 FT.
DISCHARGE 0.172 CFS
SLOPE 0.003 FT/FT.
STATION 0.

RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.054	0.067		
DEPTH 0.077 FT.	VEL(FPS)	0.858	0.933	1.257	1.277		
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.027	0.060	0.110	0.149
DEPTH 0.160 FT.	VEL(FPS)	0.693	0.775	1.123	1.380	1.483	1.537
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.061	0.091	0.152
DEPTH 0.160 FT.	VEL(FPS)	0.891	1.002	1.322	1.483	1.584	1.707
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.035	0.065	0.095	0.156
DEPTH 0.160 FT.	VEL(FPS)	0.962	1.011	1.308	1.463	1.578	1.729
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.061	0.091	0.154
DEPTH 0.160 FT.	VEL(FPS)	0.941	1.052	1.347	1.539	1.605	1.739
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.059	0.089	0.151
DEPTH 0.160 FT.	VEL(FPS)	0.801	0.901	1.190	1.355	1.480	1.527
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.022	0.084		
DEPTH 0.077 FT.	VEL(FPS)	0.850	0.850	0.957	1.230		

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH 0.167 FT.
DISCHARGE 0.114 CFS
SLOPE 0.001 FT/FT.
STATION 0.

RANGE 25.5 IN.	EL.(FT.)	0.005	0.013	0.028	0.058		
DEPTH 0.083 FT.	VEL(FPS)	0.536	0.536	0.703	0.801		
RANGE 26.5 IN.	EL.(FT.)	0.005	0.013	0.043	0.100	0.153	
DEPTH 0.167 FT.	VEL(FPS)	0.543	0.619	0.815	0.979	1.087	
RANGE 28.3 IN.	EL.(FT.)	0.005	0.010	0.025	0.055	0.112	0.165
DEPTH 0.167 FT.	VEL(FPS)	0.671	0.719	0.853	0.978	0.998	0.998
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.025	0.055	0.112	0.165
DEPTH 0.167 FT.	VEL(FPS)	0.665	0.744	0.846	0.901	0.970	0.970
RANGE 31.8 IN.	EL.(FT.)	0.005	0.010	0.025	0.055	0.112	0.165
DEPTH 0.167 FT.	VEL(FPS)	0.607	0.682	0.815	0.960	0.960	1.178
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.025	0.055	0.112	0.165
DEPTH 0.167 FT.	VEL(FPS)	0.607	0.682	0.768	0.901	1.052	1.052
RANGE 34.5 IN.	EL.(FT.)	0.005	0.013	0.068	0.098	0.045	
DEPTH 0.083 FT.	VEL(FPS)	0.649	0.660	0.901	0.941	0.787	

***NOTE

1. PANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN PANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A PANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.195 FT.
DISCHARGE 0.285 CFS
SLOPE 0.003 FT/FT.

RANGE 10.0 IN.	EL.(FT.)	0.005	0.010	0.015			
DEPTH 0.028 FT.	VEL(FPS)	0.349	0.367	0.401			
RANGE 16.5 IN.	EL.(FT.)	0.005	0.010	0.023			
DEPTH 0.028 FT.	VEL(FPS)	0.533	0.557	0.628			
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.021			
DEPTH 0.028 FT.	VEL(FPS)	0.754	0.792	1.007			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.034			
DEPTH 0.034 FT.	VEL(FPS)	1.025	1.103	1.345			
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.036	0.066	0.112	
DEPTH 0.112 FT.	VEL(FPS)	1.016	1.069	1.385	1.560	1.647	
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.069	0.109	0.139
DEPTH 0.195 FT.	VEL(FPS)	0.679	0.799	1.317	1.660	1.832	1.921
	EL.(FT.)	0.184					
	VEL(FPS)	1.959					
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.030	0.070	0.110	0.140
DEPTH 0.195 FT.	VEL(FPS)	0.979	1.184	1.560	1.862	2.055	2.122
	EL.(FT.)	0.170	0.185				
	VEL(FPS)	2.173	2.190				
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.033	0.073	0.113	0.143
DEPTH 0.195 FT.	VEL(FPS)	1.034	1.168	1.450	1.663	1.882	1.921
	EL.(FT.)	0.173	0.188				
	VEL(FPS)	2.015	2.072				
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.031	0.071	0.111	0.141
DEPTH 0.195 FT.	VEL(FPS)	1.052	1.184	1.596	1.921	2.051	2.104
	EL.(FT.)	0.171	0.186				
	VEL(FPS)	2.113	2.134				
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.069	0.109	0.139
DEPTH 0.195 FT.	VEL(FPS)	0.780	0.880	1.317	1.677	1.842	1.872
	EL.(FT.)	0.169	0.184				
	VEL(FPS)	1.901	1.901				
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.033	0.063	0.109	
DEPTH 0.112 FT.	VEL(FPS)	0.801	0.780	1.274	1.424	1.577	
RANGE 35.5 IN.	EL.(FT.)	0.005	0.010	0.023			
DEPTH 0.028 FT.	VEL(FPS)	0.925	0.979	1.168			
RANGE 36.5 IN.	EL.(FT.)	0.005	0.010	0.023			
DEPTH 0.028 FT.	VEL(FPS)	0.640	0.654	0.675			
RANGE 43.5 IN.	EL.(FT.)	0.005	0.010	0.022			
DEPTH 0.028 FT.	VEL(FPS)	0.578	0.606	0.675			
RANGE 50.0 IN.	EL.(FT.)	0.005	0.010				
DEPTH 0.028 FT.	VEL(FPS)	0.524	0.524				

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.228 FT.
DISCHARGE 0.454 CFS
SLOPE 0.003 FT/FT.

RANGE 9.5 IN.	EL.(FT.)	0.005	0.010	0.016			
DEPTH 0.019 FT.	VEL(FPS)	0.651	0.686	0.702			
RANGE 10.0 IN.	EL.(FT.)	0.005	0.010	0.043	0.056		
DEPTH 0.061 FT.	VEL(FPS)	0.495	0.523	0.912	0.970		
RANGE 16.5 IN.	EL.(FT.)	0.005	0.010	0.041	0.054		
DEPTH 0.061 FT.	VEL(FPS)	0.806	0.824	1.069	1.125		
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.038	0.052		
DEPTH 0.061 FT.	VEL(FPS)	0.880	0.917	1.239	1.345		
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.050	0.065		
DEPTH 0.065 FT.	VEL(FPS)	0.987	0.998	1.424	1.475		
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.041	0.071	0.101	0.139
DEPTH 0.145 FT.	VEL(FPS)	1.113	1.120	1.475	1.613	1.674	1.718
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.048	0.083	0.113	0.143
DEPTH 0.228 FT.	VEL(FPS)	0.703	0.960	1.630	1.792	1.901	1.915
	EL.(FT.)	0.173	0.212				
	VEL(FPS)	1.940	1.959				
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.053	0.088	0.118	0.148
DEPTH 0.228 FT.	VEL(FPS)	1.152	1.274	1.872	2.024	2.095	2.156
	EL.(FT.)	0.178	0.216				
	VEL(FPS)	2.173	2.198				
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.056	0.091	0.121	0.151
DEPTH 0.228 FT.	VEL(FPS)	1.140	1.254	1.696	1.812	1.940	1.996
	EL.(FT.)	0.181	0.221				
	VEL(FPS)	2.087	2.165				
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.056	0.091	0.121	0.151
DEPTH 0.228 FT.	VEL(FPS)	1.152	1.265	1.882	2.024	2.088	2.148
	EL.(FT.)	0.181	0.221				
	VEL(FPS)	2.173	2.207				
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.054	0.089	0.119	0.149
DEPTH 0.228 FT.	VEL(FPS)	0.826	0.921	1.663	1.822	1.892	1.921
	EL.(FT.)	0.179	0.219				
	VEL(FPS)	1.968	1.978				
RANGE 34.5 IN.	EL.(FT.)	0.005	0.010	0.035	0.065	0.095	0.134
DEPTH 0.145 FT.	VEL(FPS)	0.880	1.052	1.398	1.572	1.641	1.699
RANGE 35.5 IN.	EL.(FT.)	0.005	0.010	0.041	0.056		
DEPTH 0.061 FT.	VEL(FPS)	1.087	1.128	1.424	1.512		
RANGE 36.5 IN.	EL.(FT.)	0.005	0.010	0.038	0.052		
DEPTH 0.061 FT.	VEL(FPS)	0.884	0.972	1.270	1.331		
RANGE 43.5 IN.	EL.(FT.)	0.005	0.010	0.041	0.055		
DEPTH 0.061 FT.	VEL(FPS)	0.865	0.876	1.087	1.167		
RANGE 50.0 IN.	EL.(FT.)	0.005	0.010				
DEPTH 0.061 FT.	VEL(FPS)	0.766	0.766				

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH[2] 0.186 FT.
DISCHARGE 0.153 CFS
SLOPE 0.001 FT/FT.

RANGE[1]	2.5	IN.	:EL.[4](FT.)	0.005	0.016		
DEPTH[3]	0.019	FT.	:VEL(FPS)	0.149	0.304		
RANGE	13.0	IN.	:EL.(FT.)	0.005	0.015		
DEPTH	0.019	FT.	:VEL(FPS)	0.215	0.419		
RANGE	24.5	IN.	:EL.(FT.)	0.005	0.011		
DEPTH	0.019	FT.	:VEL(FPS)	0.407	0.470		
RANGE	26.5	IN.	:EL.(FT.)	0.005	0.015	0.089	0.169
DEPTH	0.186	FT.	:VEL(FPS)	0.524	0.592	0.921	1.103
RANGE	30.0	IN.	:EL.(FT.)	0.005	0.027	0.101	0.181
DEPTH	0.186	FT.	:VEL(FPS)	0.508	0.731	0.941	1.184
RANGE	33.5	IN.	:EL.(FT.)	0.005	0.034	0.108	0.188
DEPTH	0.188	FT.	:VEL(FPS)	0.508	0.792	0.998	1.136
RANGE	35.5	IN.	:EL.(FT.)	0.005	0.018		
DEPTH	0.019	FT.	:VEL(FPS)	0.550	0.637		
RANGE	47.0	IN.	:EL.(FT.)	0.005	0.013		
DEPTH	0.019	FT.	:VEL(FPS)	0.235	0.446		
RANGE	57.5	IN.	:EL.(FT.)	0.005	0.017		
DEPTH	0.019	FT.	:VEL(FPS)	0.201	0.298		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH 0.225 FT.
DISCHARGE 0.287 CFS
SLOPE 0.001 FT/FT.

RANGE	2.5	IN.	:EL.(FT.)	0.005	0.010	0.046			
DEPTH	0.058	FT.	:VEL(FPS)	0.364	0.421	0.533			
RANGE	13.0	IN.	:EL.(FT.)	0.005	0.010	0.047			
DEPTH	0.058	FT.	:VEL(FPS)	0.416	0.465	0.604			
RANGE	23.5	IN.	:EL.(FT.)	0.005	0.010	0.045			
DEPTH	0.058	FT.	:VEL(FPS)	0.515	0.553	0.724			
RANGE	24.5	IN.	:EL.(FT.)	0.005	0.021	0.054			
DEPTH	0.058	FT.	:VEL(FPS)	0.563	0.703	0.859			
RANGE	25.5	IN.	:EL.(FT.)	0.005	0.021	0.097	0.130		
DEPTH	0.142	FT.	:VEL(FPS)	0.665	0.768	0.921	0.979		
RANGE	26.5	IN.	:EL.(FT.)	0.005	0.010	0.053	0.103	0.179	0.212
DEPTH	0.225	FT.	:VEL(FPS)	0.657	0.693	0.941	1.034	1.087	1.103
RANGE	27.5	IN.	:EL.(FT.)	0.005	0.010	0.064	0.114	0.190	0.223
DEPTH	0.225	FT.	:VEL(FPS)	0.665	0.719	1.069	1.184	1.251	1.260
RANGE	30.0	IN.	:EL.(FT.)	0.005	0.010	0.064	0.114	0.190	0.223
DEPTH	0.225	FT.	:VEL(FPS)	0.631	0.649	0.941	1.016	1.152	1.200
RANGE	32.5	IN.	:EL.(FT.)	0.005	0.010	0.053	0.103	0.179	0.212
DEPTH	0.225	FT.	:VEL(FPS)	0.637	0.744	1.034	1.168	1.224	1.239
RANGE	33.5	IN.	:EL.(FT.)	0.005	0.010	0.053	0.103	0.179	0.212
DEPTH	0.225	FT.	:VEL(FPS)	0.631	0.665	0.941	1.087	1.136	1.136
RANGE	34.5	IN.	:EL.(FT.)	0.005	0.063	0.096			
DEPTH	0.142	FT.	:VEL(FPS)	0.631	0.859	0.917			
RANGE	35.5	IN.	:EL.(FT.)	0.005	0.010	0.045			
DEPTH	0.058	FT.	:VEL(FPS)	0.557	0.610	0.624			
RANGE	36.5	IN.	:EL.(FT.)	0.005	0.010	0.044			
DEPTH	0.058	FT.	:VEL(FPS)	0.508	0.570	0.744			
RANGE	47.0	IN.	:EL.(FT.)	0.005	0.010	0.048			
DEPTH	0.058	FT.	:VEL(FPS)	0.412	0.484	0.613			
RANGE	57.5	IN.	:EL.(FT.)	0.005	0.010	0.049			
DEPTH	0.058	FT.	:VEL(FPS)	0.389	0.421	0.515			

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH[2] 0.147 FT.
DISCHARGE 0.116 CFS
SLOPE 0.002 FT/FT.

RANGE[1] 26.5 IN.	EL.[4](FT.)	0.005	0.010	0.030	0.050	0.070	0.090
DEPTH[3] 0.147 FT.	VEL(FPS)	0.610	0.619	0.925	1.056	1.107	1.156
	EL.(FT.)	0.110	0.130				
	VEL(FPS)	1.172	1.201				
RANGE 28.3 IN.	EL.(FT.)	0.005	0.010	0.015	0.035	0.055	0.075
DEPTH 0.147 FT.	VEL(FPS)	0.783	0.826	0.889	1.100	1.218	1.291
	EL.(FT.)	0.095	0.115	0.135			
	VEL(FPS)	1.336	1.396	1.410			
RANGE 30.0 IN.	EL.(FT.)	0.005	0.012	0.017	0.037	0.057	0.077
DEPTH 0.147 FT.	VEL(FPS)	0.665	0.819	0.911	1.103	1.209	1.286
	EL.(FT.)	0.097	0.117	0.137			
	VEL(FPS)	1.331	1.374	1.408			
RANGE 31.8 IN.	EL.(FT.)	0.005	0.009	0.019	0.039	0.059	0.079
DEPTH 0.147 FT.	VEL(FPS)	0.649	0.607	0.794	1.016	1.113	1.200
	EL.(FT.)	0.099	0.119	0.139			
	VEL(FPS)	1.274	1.314	1.361			
RANGE 33.5 IN.	EL.(FT.)	0.005	0.008	0.018	0.038	0.058	0.078
DEPTH 0.147 FT.	VEL(FPS)	0.622	0.583	0.754	1.009	1.107	1.146
	EL.(FT.)	0.098	0.118	0.138			
	VEL(FPS)	1.170	1.172	1.192			

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH 0.167 FT.
DISCHARGE 0.156 CFS
SLOPE 0.002 FT/FT.
STATION 0.

RANGE 26.5 IN.	EL.(FT.)	0.005	0.011	0.021	0.031	0.051	0.071
DEPTH 0.167 FT.	VEL(FPS)	0.654	0.792	0.921	0.998	1.069	1.154
	EL.(FT.)	0.091	0.111	0.131			
	VEL(FPS)	1.189	1.230	1.283			
RANGE 28.3 IN.	EL.(FT.)	0.005	0.011	0.021	0.031	0.051	0.071
DEPTH 0.167 FT.	VEL(FPS)	0.679	0.806	0.938	1.000	1.095	1.190
	EL.(FT.)	0.091	0.111	0.131			
	VEL(FPS)	1.254	1.303	1.366			
RANGE 30.0 IN.	EL.(FT.)	0.005	0.011	0.021	0.031	0.051	0.071
DEPTH 0.167 FT.	VEL(FPS)	0.759	0.891	1.054	1.144	1.237	1.358
	EL.(FT.)	0.091	0.111	0.131			
	VEL(FPS)	1.394	1.460	1.481			
RANGE 31.8 IN.	EL.(FT.)	0.005	0.011	0.021	0.031	0.051	0.071
DEPTH 0.167 FT.	VEL(FPS)	0.679	0.781	0.903	0.988	1.120	1.186
	EL.(FT.)	0.091	0.111	0.131			
	VEL(FPS)	1.264	1.304	1.351			
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.020	0.030	0.050	0.070
DEPTH 0.167 FT.	VEL(FPS)	0.682	0.719	0.868	0.976	1.136	1.215
	EL.(FT.)	0.090	0.110	0.130			
	VEL(FPS)	1.274	1.334	1.349			

SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH 0.231 FT.
DISCHARGE 0.437 CFS
SLOPE 0.002 FT/FT.

RANGE 2.5 IN.	EL.(FT.)	0.005	0.033	0.063			
DEPTH 0.067 FT.	VEL(FPS)	0.478	0.649	0.848			
RANGE 10.0 IN.	EL.(FT.)	0.005	0.027	0.057			
DEPTH 0.067 FT.	VEL(FPS)	0.533	0.315	0.968			
RANGE 18.0 IN.	EL.(FT.)	0.005	0.025	0.055			
DEPTH 0.067 FT.	VEL(FPS)	0.668	0.824	0.989			
RANGE 24.5 IN.	EL.(FT.)	0.005	0.033	0.063			
DEPTH 0.067 FT.	VEL(FPS)	0.725	1.043	1.245			
RANGE 26.5 IN.	EL.(FT.)	0.005	0.059	0.113	0.171	0.191	0.221
DEPTH 0.234 FT.	VEL(FPS)	0.749	0.949	1.289	1.450	1.450	1.463
RANGE 30.0 IN.	EL.(FT.)	0.005	0.065	0.119	0.177	0.197	0.227
DEPTH 0.234 FT.	VEL(FPS)	0.837	1.345	1.512	1.607	1.630	1.674
RANGE 33.5 IN.	EL.(FT.)	0.005	0.057	0.111	0.169	0.189	0.219
DEPTH 0.234 FT.	VEL(FPS)	0.792	1.260	1.385	1.437	1.431	1.424
RANGE 35.5 IN.	EL.(FT.)	0.005	0.033	0.063			
DEPTH 0.067 FT.	VEL(FPS)	0.744	0.970	1.120			
RANGE 42.0 IN.	EL.(FT.)	0.005	0.033	0.063			
DEPTH 0.067 FT.	VEL(FPS)	0.607	0.848	0.979			
RANGE 50.0 IN.	EL.(FT.)	0.005	0.033	0.063			
DEPTH 0.067 FT.	VEL(FPS)	0.598	0.842	0.945			
RANGE 57.5 IN.	EL.(FT.)	0.005	0.035	0.061			
DEPTH 0.067 FT.	VEL(FPS)	0.446	0.671	0.703			

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

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SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.000
DEPTH2 0.179 FT.
DISCHARGE 0.180 CFS
SLOPE 0.002 FT/FT.
STATION 0.

RANGE1 2.5  IN. :EL4(FT.)   0.005 0.008
DEPTH3 0.012 FT. :VEL(FPS)  0.136 0.149

RANGE  4.5  IN. :EL.(FT.)   0.005 0.007
DEPTH 0.012 FT. :VEL(FPS)   0.304 0.310

RANGE  6.5  IN. :EL.(FT.)   0.005 0.006
DEPTH 0.012 FT. :VEL(FPS)   0.285 0.288

RANGE  8.5  IN. :EL.(FT.)   0.005 0.009
DEPTH 0.012 FT. :VEL(FPS)   0.243 0.265

RANGE 10.5  IN. :EL.(FT.)   0.005 0.007
DEPTH 0.012 FT. :VEL(FPS)   0.278 0.288

RANGE 12.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.265 0.285

RANGE 14.5  IN. :EL.(FT.)   0.005 0.009
DEPTH 0.012 FT. :VEL(FPS)   0.265 0.304

RANGE 16.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.316 0.333

RANGE 18.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.278 0.324

RANGE 20.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.285 0.354

RANGE 22.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.333 0.377

RANGE 24.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.589 0.634

RANGE 25.5  IN. :EL.(FT.)   0.005 0.050 0.070 0.090
DEPTH 0.096 FT. :VEL(FPS)   0.674 1.083 1.136 1.248

RANGE 26.5  IN. :EL.(FT.)   0.005 0.010 0.020 0.030 0.050 0.070
DEPTH 0.179 FT. :VEL(FPS)   0.703 0.714 0.835 0.943 1.085 1.175
                 EL.(FT.)   0.090 0.110 0.130 0.150 0.160 0.170
                 VEL(FPS)   1.230 1.283 1.320 1.367 1.390 1.458

RANGE 28.8  IN. :EL.(FT.)   0.005 0.010 0.020 0.030 0.050 0.070
DEPTH 0.179 FT. :VEL(FPS)   0.844 0.979 1.078 1.141 1.260 1.317
                 EL.(FT.)   0.090 0.110 0.130 0.150 0.160 0.170
                 VEL(FPS)   1.361 1.417 1.454 1.493 1.525 1.584

RANGE 30.0  IN. :EL.(FT.)   0.005 0.008 0.018 0.028 0.038 0.058
DEPTH 0.179 FT. :VEL(FPS)   0.859 0.880 1.031 1.122 1.184 1.274
                 EL.(FT.)   0.078 0.098 0.118 0.138 0.158 0.168
                 VEL(FPS)   1.331 1.389 1.437 1.469 1.512 1.541
                 EL.(FT.)   0.178
                 VEL(FPS)   1.584

RANGE 31.8  IN. :EL.(FT.)   0.005 0.008 0.018 0.028 0.038 0.058
DEPTH 0.179 FT. :VEL(FPS)   0.846 0.874 1.007 1.087 1.168 1.245
                 EL.(FT.)   0.078 0.098 0.118 0.138 0.158 0.168
                 VEL(FPS)   1.320 1.385 1.450 1.495 1.541 1.544
                 EL.(FT.)   0.178
                 VEL(FPS)   1.593

RANGE 33.5  IN. :EL.(FT.)   0.005 0.009 0.019 0.029 0.039 0.059
DEPTH 0.179 FT. :VEL(FPS)   0.649 0.768 0.856 0.979 1.069 1.168
                 EL.(FT.)   0.079 0.099 0.119 0.139 0.159 0.169
                 VEL(FPS)   1.207 1.237 1.257 1.271 1.289 1.303
                 EL.(FT.)   0.179
                 VEL(FPS)   1.430

RANGE 34.5  IN. :EL.(FT.)   0.005 0.025 0.075 0.095 0.115
DEPTH 0.096 FT. :VEL(FPS)   0.716 0.845 1.052 1.078 1.118

RANGE 35.5  IN. :EL.(FT.)   0.005 0.008
DEPTH 0.012 FT. :VEL(FPS)   0.685 0.698

RANGE 40.5  IN. :EL.(FT.)   0.005 0.013
DEPTH 0.012 FT. :VEL(FPS)   0.278 0.338

RANGE 45.5  IN. :EL.(FT.)   0.005 0.015
DEPTH 0.012 FT. :VEL(FPS)   0.298 0.335

RANGE 50.5  IN. :EL.(FT.)   0.005 0.018
DEPTH 0.012 FT. :VEL(FPS)   0.259 0.265

RANGE 55.5  IN. :EL.(FT.)   0.005 0.020
DEPTH 0.012 FT. :VEL(FPS)   0.321 0.285

RANGE 57.8  IN. :EL.(FT.)   0.005
DEPTH 0.012 FT. :VEL(FPS)   0.149

***NOTE
   1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
   2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
   3. DEPTH OF FLOW AT A GIVEN RANGE.
   4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH[2] 0.173 FT.
DISCHARGE 0.176 CFS
SLOPE 0.003 FT/FT.
STATION  0.

RANGE[1] 2.5  IN. :EL.[4](FT.)   0.005
DEPTH[3] 0.006 FT. :VEL(FPS)   0.

RANGE 24.5  IN. :EL.(FT.)   0.005  0.010
DEPTH 0.010 FT. :VEL(FPS)   0.543  0.396

RANGE 25.5  IN. :EL.(FT.)   0.005  0.011  0.045  0.061
DEPTH 0.090 FT. :VEL(FPS)   0.792  0.859  1.120  1.274

RANGE 26.5  IN. :EL.(FT.)   0.005  0.010  0.069  0.123  0.159
DEPTH 0.173 FT. :VEL(FPS)   0.714  0.859  1.437  1.512  1.560

RANGE 27.5  IN. :EL.(FT.)   0.005  0.013  0.092  0.126  0.162
DEPTH 0.173 FT. :VEL(FPS)   0.783  0.960  1.525  1.607  1.652

RANGE 30.0  IN. :EL.(FT.)   0.005  0.014  0.093  0.127  0.163
DEPTH 0.173 FT. :VEL(FPS)   0.880  1.069  1.475  1.572  1.663

RANGE 32.5  IN. :EL.(FT.)   0.005  0.013  0.092  0.126  0.162
DEPTH 0.173 FT. :VEL(FPS)   0.859  0.979  1.543  1.630  1.663

RANGE 33.5  IN. :EL.(FT.)   0.005  0.013  0.092  0.126  0.162
DEPTH 0.173 FT. :VEL(FPS)   0.833  0.941  1.385  1.437  1.463

RANGE 34.5  IN. :EL.(FT.)   0.005  0.013  0.047  0.083
DEPTH 0.090 FT. :VEL(FPS)   0.682  0.754  1.016  1.215

RANGE 35.5  IN. :EL.(FT.)   0.005
DEPTH 0.010 FT. :VEL(FPS)   0.243

RANGE 57.5  IN. :EL.(FT.)   0.005
DEPTH 0.006 FT. :VEL(FPS)   0.
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***NOTE
   1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
   2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
   3. DEPTH OF FLOW AT A GIVEN RANGE.
   4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.090
DEPTH 0.194 FT.
DISCHARGE 0.247 CFS
SLOPE 0.003 FT/FT.

RANGE  2.5  IN. :EL.(FT.)   0.005  0.015
DEPTH 0.027 FT. :VEL(FPS)   0.172  0.291

RANGE 13.0  IN. :EL.(FT.)   0.005  0.013
DEPTH 0.027 FT. :VEL(FPS)   0.291  0.369

RANGE 23.5  IN. :EL.(FT.)   0.005  0.011
DEPTH 0.027 FT. :VEL(FPS)   0.403  0.467

RANGE 24.5  IN. :EL.(FT.)   0.005  0.013
DEPTH 0.027 FT. :VEL(FPS)   0.719  0.859

RANGE 25.5  IN. :EL.(FT.)   0.005  0.090
DEPTH 0.111 FT. :VEL(FPS)   0.744  1.385

RANGE 26.5  IN. :EL.(FT.)   0.005  0.085  0.170
DEPTH 0.194 FT. :VEL(FPS)   0.731  1.411  1.612

RANGE 27.5  IN. :EL.(FT.)   0.005  0.091  0.176
DEPTH 0.194 FT. :VEL(FPS)   0.815  1.596  1.781

RANGE 30.0  IN. :EL.(FT.)   0.005  0.094  0.179
DEPTH 0.194 FT. :VEL(FPS)   0.815  1.488  1.760

RANGE 32.5  IN. :EL.(FT.)   0.005  0.095  0.180
DEPTH 0.194 FT. :VEL(FPS)   0.850  1.663  1.822

RANGE 33.5  IN. :EL.(FT.)   0.005  0.094  0.179
DEPTH 0.194 FT. :VEL(FPS)   0.744  1.525  1.623

RANGE 34.5  IN. :EL.(FT.)   0.005  0.020  0.105
DEPTH 0.111 FT. :VEL(FPS)   0.801  0.987  1.385

RANGE 35.5  IN. :EL.(FT.)   0.005  0.013
DEPTH 0.027 FT. :VEL(FPS)   0.744  0.815

RANGE 36.5  IN. :EL.(FT.)   0.005  0.010
DEPTH 0.027 FT. :VEL(FPS)   0.497  0.567

RANGE 47.0  IN. :EL.(FT.)   0.005  0.012
DEPTH 0.027 FT. :VEL(FPS)   0.338  0.486

RANGE 57.5  IN. :EL.(FT.)   0.005  0.017
DEPTH 0.027 FT. :VEL(FPS)   0.338  0.434
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SYMMETRIC FLOODPLAIN
ASPECT RATIO 4.098
DEPTH[2] 0.204 FT.
DISCHARGE 0.322 CFS
SLOPE 0.003 FT/FT.

RANGE[1] 2.5 IN.	:EL.[4](FT.)	0.005	0.010	0.029			
DEPTH[3] 0.037 FT.	:VEL(FPS)	0.438	0.490	0.607			
RANGE 13.0 IN.	:EL.(FT.)	0.005	0.010	0.029			
DEPTH 0.037 FT.	:VEL(FPS)	0.550	0.595	0.719			
RANGE 23.5 IN.	:EL.(FT.)	0.005	0.007	0.026			
DEPTH 0.037 FT.	:VEL(FPS)	0.649	0.649	0.880			
RANGE 24.5 IN.	:EL.(FT.)	0.005	0.015	0.034			
DEPTH 0.037 FT.	:VEL(FPS)	0.804	0.931	1.136			
RANGE 25.5 IN.	:EL.(FT.)	0.005	0.010	0.050	0.101	0.120	
DEPTH 0.120 FT.	:VEL(FPS)	0.901	0.901	1.289	1.450	1.437	
RANGE 26.5 IN.	:EL.(FT.)	0.005	0.010	0.060	0.120	0.171	0.190
DEPTH 0.204 FT.	:VEL(FPS)	0.792	0.837	1.488	1.630	1.696	1.718
	EL.(FT.)	0.045					
	VEL(FPS)	1.283					
RANGE 27.5 IN.	:EL.(FT.)	0.005	0.016	0.051	0.086	0.126	0.177
DEPTH 0.204 FT.	:VEL(FPS)	0.960	1.052	1.488	1.707	1.642	1.949
	EL.(FT.)	0.196					
	VEL(FPS)	1.949					
RANGE 30.0 IN.	:EL.(FT.)	0.005	0.014	0.049	0.084	0.124	0.175
DEPTH 0.204 FT.	:VEL(FPS)	0.989	1.093	1.437	1.572	1.674	1.852
	EL.(FT.)	0.194					
	VEL(FPS)	1.901					
RANGE 32.5 IN.	:EL.(FT.)	0.005	0.012	0.047	0.082	0.122	0.173
DEPTH 0.204 FT.	:VEL(FPS)	0.960	1.136	1.549	1.739	1.872	1.940
	EL.(FT.)	0.192					
	VEL(FPS)	1.949					
RANGE 33.5 IN.	:EL.(FT.)	0.005	0.007	0.042	0.077	0.117	0.168
DEPTH 0.204 FT.	:VEL(FPS)	0.941	1.016	1.437	1.607	1.696	1.781
	EL.(FT.)	0.187					
	VEL(FPS)	1.760					
RANGE 34.5 IN.	:EL.(FT.)	0.005	0.043	0.094	0.113		
DEPTH 0.120 FT.	:VEL(FPS)	0.960	1.317	1.450	1.437		
RANGE 35.5 IN.	:EL.(FT.)	0.005	0.014	0.033			
DEPTH 0.037 FT.	:VEL(FPS)	0.850	0.921	1.120			
RANGE 36.5 IN.	:EL.(FT.)	0.005	0.022				
DEPTH 0.037 FT.	:VEL(FPS)	0.719	0.941				
RANGE 47.0 IN.	:EL.(FT.)	0.005	0.022				
DEPTH 0.037 FT.	:VEL(FPS)	0.543	0.676				
RANGE 57.5 IN.	:EL.(FT.)	0.005	0.025				
DEPTH 0.037 FT.	:VEL(FPS)	0.455	0.567				

SYMMETRIC FLOODPLAIN-LARGER SCALE CHANNEL
ASPECT RATIO 2.636
DEPTH 0.244 FT.
DISCHARGE 0.397 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE 2.7 IN.	:EL.(FT.)	0.005	0.010	0.019			
DEPTH 0.017 FT.	:VEL(FPS)	0.201	0.272	0.394			
RANGE 12.5 IN.	:EL.(FT.)	0.005	0.014				
DEPTH 0.017 FT.	:VEL(FPS)	0.501	0.595				
RANGE 22.5 IN.	:EL.(FT.)	0.005					
DEPTH 0.017 FT.	:VEL(FPS)	0.700					
RANGE 25.2 IN.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.160
DEPTH 0.244 FT.	:VEL(FPS)	0.801	0.859	1.041	1.200	1.385	1.537
	EL.(FT.)	0.243	0.	0.	0.	0.	0.
	VEL(FPS)	1.445	0.	0.	0.	0.	0.
RANGE 30.0 IN.	:EL.(FT.)	0.005	0.010	0.020	0.034	0.074	0.154
DEPTH 0.244 FT.	:VEL(FPS)	1.016	1.093	1.268	1.358	1.495	1.707
	EL.(FT.)	0.238	0.	0.	0.	0.	0.
	VEL(FPS)	1.802	0.	0.	0.	0.	0.
RANGE 34.8 IN.	:EL.(FT.)	0.005	0.010	0.019	0.039	0.079	0.159
DEPTH 0.244 FT.	:VEL(FPS)	0.815	0.815	0.949	1.184	1.372	1.512
	EL.(FT.)	0.243	0.	0.	0.	0.	0.
	VEL(FPS)	1.525	0.	0.	0.	0.	0.
RANGE 37.5 IN.	:EL.(FT.)	0.005	0.008				
DEPTH 0.017 FT.	:VEL(FPS)	0.744	0.792				
RANGE 47.5 IN.	:EL.(FT.)	0.005	0.010	0.019			
DEPTH 0.017 FT.	:VEL(FPS)	0.412	0.478	0.501			
RANGE 57.3 IN.	:EL.(FT.)	0.005	0.010	0.020	0.031		
DEPTH 0.017 FT.	:VEL(FPS)	0.543	0.523	0.607	0.607		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN-LARGER SCALE CHANNEL
ASPECT RATIO 2.636
DEPTH[2] 0.289 FT.
DISCHARGE 0.676 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE[1] 2.7 IN.	EL.[4](FT.)	0.005	0.010	0.020	0.040	0.067	
DEPTH[3] 0.062 FT.	VEL(FPS)	0.625	0.676	0.759	0.824	0.880	
RANGE 12.5 IN.	EL.(FT.)	0.005	0.013	0.033	0.060		
DEPTH 0.062 FT.	VEL(FPS)	0.859	0.960	1.052	1.162		
RANGE 22.5 IN.	EL.(FT.)	0.005	0.009	0.029	0.056		
DEPTH 0.062 FT.	VEL(FPS)	0.941	1.005	1.162	1.215		
RANGE 25.2 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.150
DEPTH 0.289 FT.	VEL(FPS)	0.901	0.998	1.184	1.331	1.488	1.560
	EL.(FT.)	0.220	0.285	0.	0.	0.	0.
	VEL(FPS)	1.537	1.537	0.	0.	0.	0.
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.017	0.037	0.077	0.147
DEPTH 0.289 FT.	VEL(FPS)	0.901	1.052	1.152	1.289	1.424	1.495
	EL.(FT.)	0.217	0.283	0.	0.	0.	0.
	VEL(FPS)	1.607	1.685	0.	0.	0.	0.
RANGE 34.8 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.150
DEPTH 0.289 FT.	VEL(FPS)	0.837	0.921	1.103	1.303	1.500	1.641
	EL.(FT.)	0.220	0.286	0.	0.	0.	0.
	VEL(FPS)	1.652	1.623	0.	0.	0.	0.
RANGE 37.5 IN.	EL.(FT.)	0.005	0.017	0.027	0.055		
DEPTH 0.062 FT.	VEL(FPS)	0.921	1.034	1.120	1.215		
RANGE 47.5 IN.	EL.(FT.)	0.005	0.017	0.037	0.065		
DEPTH 0.062 FT.	VEL(FPS)	0.815	0.953	1.016	1.103		
RANGE 57.3 IN.	EL.(FT.)	0.005	0.020	0.030	0.050	0.078	
DEPTH 0.062 FT.	VEL(FPS)	0.734	0.792	0.837	0.872	0.921	

SYMMETRIC FLOODPLAIN-LARGER SCALE CHANNEL /W NO. 8 GRAVEL ON FLOODPLAIN
ASPECT RATIO 2.636
DEPTH 0.251 FT.
DISCHARGE 0.395 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE 2.7 IN.	EL.(FT.)	0.005	0.015	0.035			
DEPTH 0.014 FT.	VEL(FPS)	0.	0.105	0.227			
RANGE 10.0 IN.	EL.(FT.)	0.005	0.015	0.029			
DEPTH 0.014 FT.	VEL(FPS)	0.210	0.298	0.344			
RANGE 20.0 IN.	EL.(FT.)	0.005	0.014	0.023			
DEPTH 0.014 FT.	VEL(FPS)	0.258	0.354	0.403			
RANGE 22.5 IN.	EL.(FT.)	0.005	0.015	0.024			
DEPTH 0.014 FT.	VEL(FPS)	0.508	0.744	0.859			
RANGE 25.2 IN.	EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.141
DEPTH 0.251 FT.	VEL(FPS)	0.979	1.024	1.130	1.245	1.398	1.568
	EL.(FT.)	0.201	0.249	0.	0.	0.	0.
	VEL(FPS)	1.572	1.549	0.	0.	0.	0.
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.019	0.039	0.079	0.140
DEPTH 0.251 FT.	VEL(FPS)	1.230	1.274	1.303	1.450	1.525	1.618
	EL.(FT.)	0.200	0.247	0.	0.	0.	0.
	VEL(FPS)	1.771	1.750	0.	0.	0.	0.
RANGE 34.8 IN.	EL.(FT.)	0.005	0.010	0.019	0.039	0.079	0.140
DEPTH 0.251 FT.	VEL(FPS)	0.859	0.960	1.120	1.274	1.398	1.488
	EL.(FT.)	0.200	0.247	0.	0.	0.	0.
	VEL(FPS)	1.572	1.584	0.	0.	0.	0.
RANGE 37.5 IN.	EL.(FT.)	0.005	0.012	0.019			
DEPTH 0.014 FT.	VEL(FPS)	0.543	0.693	0.768			
RANGE 40.0 IN.	EL.(FT.)	0.005	0.013				
DEPTH 0.014 FT.	VEL(FPS)	0.243	0.285				
RANGE 50.0 IN.	EL.(FT.)	0.005	0.019	0.026			
DEPTH 0.014 FT.	VEL(FPS)	0.192	0.310	0.333			
RANGE 57.3 IN.	EL.(FT.)	0.005	0.015	0.031			
DEPTH 0.014 FT.	VEL(FPS)	0.227	0.272	0.338			

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

MEANDERING CHANNEL 10 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH[2] 0.209 FT.
DISCHARGE 0.250 CFS
SLOPE 0.001 FT/FT.
STATION 30.0

RANGE[1]	3.0	IN.	:EL.[4](FT.)	0.005	0.045	0.080	
DEPTH[3]	0.126	FT.	:VEL(FPS)	0.607	0.815	0.859	
RANGE	4.0	IN.	:EL.(FT.)	0.005	0.036	0.096	0.197
DEPTH	0.209	FT.	:VEL(FPS)	0.719	0.806	0.901	1.087
RANGE	7.5	IN.	:EL.(FT.)	0.005	0.051	0.111	0.212
DEPTH	0.209	FT.	:VEL(FPS)	0.792	1.034	1.168	1.317
RANGE	11.0	IN.	:EL.(FT.)	0.005	0.048	0.108	0.208
DEPTH	0.209	FT.	:VEL(FPS)	0.719	0.901	1.052	1.069
RANGE	12.0	IN.	:EL.(FT.)	0.005	0.059	0.134	
DEPTH	0.126	FT.	:VEL(FPS)	0.792	0.960	1.034	
RANGE	13.0	IN.	:EL.(FT.)	0.005	0.015	0.040	
DEPTH	0.042	FT.	:VEL(FPS)	0.792	0.880	0.901	
RANGE	20.0	IN.	:EL.(FT.)	0.005	0.012	0.038	
DEPTH	0.042	FT.	:VEL(FPS)	0.430	0.508	0.607	
RANGE	35.0	IN.	:EL.(FT.)	0.005	0.011	0.035	
DEPTH	0.042	FT.	:VEL(FPS)	0.508	0.543	0.619	
RANGE	50.0	IN.	:EL.(FT.)	0.005	0.013	0.037	
DEPTH	0.042	FT.	:VEL(FPS)	0.470	0.543	0.637	
RANGE	58.0	IN.	:EL.(FT.)	0.005	0.022		
DEPTH	0.042	FT.	:VEL(FPS)	0.384	0.508		

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

MEANDERING CHANNEL 10 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH 0.211 FT.
DISCHARGE 0.249 CFS
SLOPE 0.001 FT/FT.
STATION 35.0

RANGE	3.0	IN.	:EL.(FT.)	0.005	0.015	0.031		
DEPTH	0.044	FT.	:VEL(FPS)	0.446	0.724	0.768		
RANGE	10.0	IN.	:EL.(FT.)	0.005	0.016	0.033		
DEPTH	0.044	FT.	:VEL(FPS)	0.719	0.837	0.998		
RANGE	20.0	IN.	:EL.(FT.)	0.005	0.015	0.032		
DEPTH	0.044	FT.	:VEL(FPS)	0.960	1.152	1.345		
RANGE	23.5	IN.	:EL.(FT.)	0.005	0.015	0.032		
DEPTH	0.044	FT.	:VEL(FPS)	1.152	1.372	1.437		
RANGE	25.5	IN.	:EL.(FT.)	0.005	0.015	0.045	0.109	
DEPTH	0.111	FT.	:VEL(FPS)	1.041	1.136	1.274	1.245	
RANGE	26.8	IN.	:EL.(FT.)	0.005	0.025	0.065	0.115	0.196
DEPTH	0.211	FT.	:VEL(FPS)	0.768	0.941	1.215	1.215	1.136
RANGE	27.8	IN.	:EL.(FT.)	0.005	0.032	0.072	0.122	0.203
DEPTH	0.211	FT.	:VEL(FPS)	0.749	1.041	1.162	1.162	1.087
RANGE	30.8	IN.	:EL.(FT.)	0.005	0.032	0.072	0.122	0.203
DEPTH	0.211	FT.	:VEL(FPS)	0.744	0.901	0.921	0.837	0.783
RANGE	33.5	IN.	:EL.(FT.)	0.005	0.031	0.071	0.121	0.202
DEPTH	0.211	FT.	:VEL(FPS)	0.625	0.768	0.837	0.801	0.660
RANGE	34.5	IN.	:EL.(FT.)	0.005	0.025	0.065	0.115	0.197
DEPTH	0.211	FT.	:VEL(FPS)	0.589	0.649	0.744	0.759	0.589
RANGE	35.5	IN.	:EL.(FT.)	0.005	0.021	0.051	0.117	
DEPTH	0.122	FT.	:VEL(FPS)	0.563	0.607	0.576	0.607	
RANGE	36.5	IN.	:EL.(FT.)	0.005	0.015	0.033		
DEPTH	0.044	FT.	:VEL(FPS)	0.470	0.543	0.607		
RANGE	40.0	IN.	:EL.(FT.)	0.005	0.018	0.037		
DEPTH	0.044	FT.	:VEL(FPS)	0.470	0.550	0.637		
RANGE	50.0	IN.	:EL.(FT.)	0.005	0.019	0.038		
DEPTH	0.044	FT.	:VEL(FPS)	0.531	0.625	0.665		
RANGE	58.0	IN.	:EL.(FT.)	0.005	0.019	0.038		
DEPTH	0.044	FT.	:VEL(FPS)	0.438	0.470	0.515		

MEANDERING CHANNEL 10 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH[2] 0.211 FT.
DISCHARGE 0.251 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE[1] 3.0 IN.	EL.[4](FT.)	0.005	0.023	0.039		
DEPTH[3] 0.044 FT.	VEL(FPS)	0.430	0.515	0.557		
RANGE 10.0 IN.	EL.(FT.)	0.005	0.023	0.039		
DEPTH 0.044 FT.	VEL(FPS)	0.570	0.693	0.729		
RANGE 20.0 IN.	EL.(FT.)	0.005	0.022	0.039		
DEPTH 0.044 FT.	VEL(FPS)	0.768	0.824	0.909		
RANGE 30.0 IN.	EL.(FT.)	0.005	0.025	0.042		
DEPTH 0.044 FT.	VEL(FPS)	0.792	0.921	1.034		
RANGE 40.0 IN.	EL.(FT.)	0.005	0.026	0.043		
DEPTH 0.044 FT.	VEL(FPS)	0.768	0.901	1.005		
RANGE 46.0 IN.	EL.(FT.)	0.005	0.026	0.043		
DEPTH 0.044 FT.	VEL(FPS)	0.744	0.949	1.059		
RANGE 47.0 IN.	EL.(FT.)	0.005	0.028	0.044		
DEPTH 0.044 FT.	VEL(FPS)	0.754	0.960	1.052		
RANGE 48.0 IN.	EL.(FT.)	0.005	0.025	0.065	0.118	
DEPTH 0.128 FT.	VEL(FPS)	0.637	0.637	0.941	1.034	
RANGE 49.0 IN.	EL.(FT.)	0.005	0.025	0.065	0.125	0.210
DEPTH 0.211 FT.	VEL(FPS)	0.665	0.759	0.901	0.968	0.941
RANGE 50.0 IN.	EL.(FT.)	0.005	0.025	0.065	0.125	0.211
DEPTH 0.211 FT.	VEL(FPS)	0.676	0.850	0.960	0.868	0.815
RANGE 52.5 IN.	EL.(FT.)	0.005	0.024	0.064	0.124	0.211
DEPTH 0.211 FT.	VEL(FPS)	0.665	0.815	0.921	0.719	0.693
RANGE 55.0 IN.	EL.(FT.)	0.005	0.026	0.066	0.126	0.213
DEPTH 0.211 FT.	VEL(FPS)	0.470	0.637	0.783	0.801	0.637
RANGE 56.0 IN.	EL.(FT.)	0.005	0.025	0.065	0.125	0.214
DEPTH 0.211 FT.	VEL(FPS)	0.384	0.543	0.637	0.734	0.530
RANGE 58.0 IN.	EL.(FT.)	0.005	0.023	0.042		
DEPTH 0.044 FT.	VEL(FPS)	0.272	0.354	0.298		

MEANDERING CHANNEL 10 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH 0.210 FT.
DISCHARGE 0.248 CFS
SLOPE 0.001 FT/FT.
STATION 45.0

RANGE 3.0 IN.	EL.(FT.)	0.005	0.014	0.030		
DEPTH 0.043 FT.	VEL(FPS)	0.576	0.682	0.744		
RANGE 10.0 IN.	EL.(FT.)	0.005	0.014	0.033		
DEPTH 0.043 FT.	VEL(FPS)	0.693	0.754	0.850		
RANGE 20.0 IN.	EL.(FT.)	0.005	0.014	0.033		
DEPTH 0.043 FT.	VEL(FPS)	0.637	0.724	0.828		
RANGE 30.0 IN.	EL.(FT.)	0.005	0.016	0.035		
DEPTH 0.043 FT.	VEL(FPS)	0.607	0.719	0.801		
RANGE 40.0 IN.	EL.(FT.)	0.005	0.021	0.038		
DEPTH 0.043 FT.	VEL(FPS)	0.595	0.719	0.792		
RANGE 47.0 IN.	EL.(FT.)	0.005	0.021	0.036		
DEPTH 0.043 FT.	VEL(FPS)	0.654	0.759	0.815		
RANGE 49.0 IN.	EL.(FT.)	0.005	0.025	0.065	0.207	
DEPTH 0.210 FT.	VEL(FPS)	0.719	0.901	0.991	0.991	
RANGE 52.5 IN.	EL.(FT.)	0.005	0.025	0.065	0.125	0.206
DEPTH 0.210 FT.	VEL(FPS)	0.693	0.815	0.921	0.979	1.041
RANGE 56.0 IN.	EL.(FT.)	0.005	0.049	0.109	0.190	
DEPTH 0.210 FT.	VEL(FPS)	0.665	0.901	0.979	1.020	
RANGE 58.0 IN.	EL.(FT.)	0.005	0.015			
DEPTH 0.043 FT.	VEL(FPS)	0.563	0.508			

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

SYMMETRIC FLOODPLAIN-LARGER SCALE CHANNEL /W NO. 8 GRAVEL ON FLOODPLAIN

ASPECT RATIO 2.636
DEPTH[2] 0.292 FT.
DISCHARGE 0.545 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE[1] 2.7 IN.	DEPTH[3] 0.055 FT.	:EL.[4](FT.)	0.005	0.010	0.020	0.040	0.073	
		:VEL(FPS)	0.235	0.298	0.364	0.430	0.486	
RANGE 10.0 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.009	0.029	0.066		
		:VEL(FPS)	0.250	0.310	0.446	0.543		
RANGE 20.0 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.010	0.023	0.060		
		:VEL(FPS)	0.379	0.430	0.576	0.880		
RANGE 22.5 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.010	0.023	0.058		
		:VEL(FPS)	0.749	0.880	0.964	1.069		
RANGE 25.2 IN.	DEPTH 0.292 FT.	:EL.(FT.)	0.005	0.010	0.020	0.040	0.080	0.130
		:VEL(FPS)	1.016	1.052	1.152	1.230	1.372	1.437
		EL.(FT.)	0.180	0.230	0.289	0.	0.	0.
		VEL(FPS)	1.500	1.500	1.475	0.	0.	0.
RANGE 30.0 IN.	DEPTH 0.292 FT.	:EL.(FT.)	0.005	0.013	0.023	0.033	0.073	0.123
		:VEL(FPS)	1.016	1.067	1.120	1.184	1.317	1.366
		EL.(FT.)	0.173	0.223	0.287	0.	0.	0.
		VEL(FPS)	1.385	1.475	1.549	0.	0.	0.
RANGE 34.8 IN.	DEPTH 0.292 FT.	:EL.(FT.)	0.005	0.010	0.022	0.032	0.072	0.122
		:VEL(FPS)	0.815	0.901	1.103	1.184	1.372	1.525
		EL.(FT.)	0.172	0.222	0.286	0.	0.	0.
		VEL(FPS)	1.560	1.630	1.652	0.	0.	0.
RANGE 37.5 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.010	0.023	0.058		
		:VEL(FPS)	0.637	0.815	0.960	1.152		
RANGE 40.0 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.018	0.038	0.053		
		:VEL(FPS)	0.493	0.607	0.768	0.901		
RANGE 50.0 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.014	0.034	0.069		
		:VEL(FPS)	0.291	0.430	0.470	0.543		
RANGE 57.3 IN.	DEPTH 0.055 FT.	:EL.(FT.)	0.005	0.010	0.030	0.065		
		:VEL(FPS)	0.384	0.384	0.416	0.470		

MEANDERING CHANNEL 20 FOOT CROSSOVER

ASPECT RATIO 4.091
DEPTH 0.250 FT.
DISCHARGE 0.505 CFS
SLOPE 0.001 FT/FT.
STATION 50.0

RANGE 2.0 IN.	DEPTH 0.083 FT.	:EL.(FT.)	0.005	0.040	0.077	
		:VEL(FPS)	0.455	0.654	0.665	
RANGE 17.0 IN.	DEPTH 0.083 FT.	:EL.(FT.)	0.005	0.048	0.088	
		:VEL(FPS)	0.768	1.024	1.168	
RANGE 32.0 IN.	DEPTH 0.083 FT.	:EL.(FT.)	0.005	0.055	0.094	
		:VEL(FPS)	0.665	1.034	1.175	
RANGE 47.0 IN.	DEPTH 0.083 FT.	:EL.(FT.)	0.005	0.052	0.088	
		:VEL(FPS)	0.703	1.103	1.120	
RANGE 49.0 IN.	DEPTH 0.250 FT.	:EL.(FT.)	0.005	0.089	0.173	0.254
		:VEL(FPS)	0.719	1.120	1.052	1.063
RANGE 52.5 IN.	DEPTH 0.250 FT.	:EL.(FT.)	0.005	0.090	0.174	0.254
		:VEL(FPS)	0.693	1.052	0.960	0.972
RANGE 56.0 IN.	DEPTH 0.250 FT.	:EL.(FT.)	0.005	0.074	0.158	0.238
		:VEL(FPS)	0.530	0.850	0.768	0.872
RANGE 58.0 IN.	DEPTH 0.083 FT.	:EL.(FT.)	0.005	0.059	0.093	
		:VEL(FPS)	0.421	0.595	0.693	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

MEANDERING CHANNEL 20 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH[2] 0.250 FT.
DISCHARGE 0.503 CFS
SLOPE 0.001 FT/FT.
STATION 40.0

RANGE[1] 2.0 IN.	EL.[4](FT.)	0.005	0.010	0.020	0.040	0.065	
DEPTH[3] 0.083 FT.	VEL(FPS)	0.700	0.754	0.872	0.921	0.979	
RANGE 10.0 IN.	EL.(FT.)	0.005	0.010	0.026	0.046	0.070	
DEPTH 0.083 FT.	VEL(FPS)	1.063	1.069	1.215	1.317	1.411	
RANGE 17.0 IN.	EL.(FT.)	0.005	0.010	0.029	0.049	0.073	
DEPTH 0.083 FT.	VEL(FPS)	1.073	1.143	1.331	1.475	1.549	
RANGE 23.5 IN.	EL.(FT.)	0.005	0.010	0.026	0.046	0.071	
DEPTH 0.083 FT.	VEL(FPS)	0.933	1.045	1.230	1.398	1.450	
RANGE 24.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.049	0.075	
DEPTH 0.083 FT.	VEL(FPS)	1.184	1.215	1.372	1.419	1.437	
RANGE 25.5 IN.	EL.(FT.)	0.005	0.010	0.022	0.042	0.082	0.161
DEPTH 0.167 FT.	VEL(FPS)	1.016	1.059	1.136	1.230	1.331	1.366
RANGE 26.5 IN.	EL.(FT.)	0.005	0.010	0.021	0.041	0.081	0.141
DEPTH 0.250 FT.	VEL(FPS)	0.768	0.837	0.941	1.052	1.184	1.289
	EL.(FT.)	0.240	0.	0.	0.	0.	0.
	VEL(FPS)	1.289	0.	0.	0.	0.	0.
RANGE 27.5 IN.	EL.(FT.)	0.005	0.010	0.016	0.036	0.076	0.136
DEPTH 0.250 FT.	VEL(FPS)	0.901	0.960	1.016	1.152	1.260	1.274
	EL.(FT.)	0.235	0.	0.	0.	0.	0.
	VEL(FPS)	1.289	0.	0.	0.	0.	0.
RANGE 30.0 IN.	EL.(FT.)	0.005	0.010	0.022	0.042	0.082	0.142
DEPTH 0.250 FT.	VEL(FPS)	0.859	0.921	1.052	1.120	1.136	1.103
	EL.(FT.)	0.241	0.	0.	0.	0.	0.
	VEL(FPS)	1.103	0.	0.	0.	0.	0.
RANGE 32.5 IN.	EL.(FT.)	0.005	0.010	0.017	0.037	0.077	0.137
DEPTH 0.250 FT.	VEL(FPS)	0.693	0.768	0.837	0.941	1.027	0.972
	EL.(FT.)	0.238	0.	0.	0.	0.	0.
	VEL(FPS)	1.041	0.	0.	0.	0.	0.
RANGE 33.5 IN.	EL.(FT.)	0.005	0.010	0.015	0.035	0.075	0.135
DEPTH 0.250 FT.	VEL(FPS)	0.665	0.703	0.734	0.859	0.913	0.837
	EL.(FT.)	0.234	0.	0.	0.	0.	0.
	VEL(FPS)	1.005	0.	0.	0.	0.	0.
RANGE 34.5 IN.	EL.(FT.)	0.005	0.015	0.030	0.050	0.090	0.170
DEPTH 0.167 FT.	VEL(FPS)	0.637	0.719	0.768	0.768	0.719	1.024
RANGE 35.5 IN.	EL.(FT.)	0.005	0.010	0.029	0.049	0.077	
DEPTH 0.083 FT.	VEL(FPS)	0.576	0.703	0.859	0.933	1.009	
RANGE 36.5 IN.	EL.(FT.)	0.005	0.010	0.026	0.046	0.074	
DEPTH 0.083 FT.	VEL(FPS)	0.693	0.744	0.872	0.933	1.009	
RANGE 43.0 IN.	EL.(FT.)	0.005	0.010	0.025	0.045	0.072	
DEPTH 0.083 FT.	VEL(FPS)	0.708	0.768	0.850	0.913	0.998	
RANGE 50.0 IN.	EL.(FT.)	0.005	0.010	0.032	0.052	0.080	
DEPTH 0.083 FT.	VEL(FPS)	0.665	0.719	0.859	0.909	0.968	
RANGE 58.0 IN.	EL.(FT.)	0.005	0.010	0.033	0.053	0.077	
DEPTH 0.083 FT.	VEL(FPS)	0.613	0.643	0.760	0.806	0.859	

MEANDERING CHANNEL 20 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH 0.250 FT.
DISCHARGE 0.504 CFS
SLOPE 0.001 FT/FT.
STATION 30.0

RANGE 3.0 IN.	EL.(FT.)	0.005	0.055	0.104	
DEPTH 0.167 FT.	VEL(FPS)	0.744	0.998	1.103	
RANGE 4.0 IN.	EL.(FT.)	0.005	0.076	0.147	0.217
DEPTH 0.250 FT.	VEL(FPS)	0.693	1.087	1.274	1.245
RANGE 7.5 IN.	EL.(FT.)	0.005	0.084	0.163	0.244
DEPTH 0.250 FT.	VEL(FPS)	0.880	1.385	1.572	1.591
RANGE 11.0 IN.	EL.(FT.)	0.005	0.086	0.165	0.245
DEPTH 0.250 FT.	VEL(FPS)	0.792	1.274	1.372	1.317
RANGE 13.0 IN.	EL.(FT.)	0.005	0.041	0.076	
DEPTH 0.083 FT.	VEL(FPS)	0.792	1.016	1.120	
RANGE 28.0 IN.	EL.(FT.)	0.005	0.039	0.073	
DEPTH 0.083 FT.	VEL(FPS)	0.708	0.933	1.034	
RANGE 43.0 IN.	EL.(FT.)	0.005	0.045	0.078	
DEPTH 0.083 FT.	VEL(FPS)	0.676	0.859	0.968	
RANGE 58.0 IN.	EL.(FT.)	0.005	0.045	0.076	
DEPTH 0.083 FT.	VEL(FPS)	0.595	0.693	0.729	

MEANDERING CHANNEL 20 FOOT CROSSOVER
ASPECT RATIO 4.091
DEPTH 0.251 FT.
DISCHARGE 0.505 CFS
SLOPE 0.001 FT/FT.
STATION 55.0

RANGE 2.0 IN.	EL.(FT.)	0.005	0.043	0.080	
DEPTH 0.084 FT.	VEL(FPS)	0.374	0.595	0.708	
RANGE 17.0 IN.	EL.(FT.)	0.005	0.042	0.080	
DEPTH 0.084 FT.	VEL(FPS)	0.654	0.941	1.087	
RANGE 32.0 IN.	EL.(FT.)	0.005	0.048	0.083	
DEPTH 0.084 FT.	VEL(FPS)	0.654	1.024	1.120	
RANGE 47.0 IN.	EL.(FT.)	0.005	0.052	0.080	
DEPTH 0.084 FT.	VEL(FPS)	0.859	1.127	1.230	
RANGE 49.0 IN.	EL.(FT.)	0.005	0.083	0.162	0.240
DEPTH 0.251 FT.	VEL(FPS)	0.729	1.136	1.190	1.224
RANGE 52.5 IN.	EL.(FT.)	0.005	0.084	0.163	0.240
DEPTH 0.251 FT.	VEL(FPS)	0.744	1.113	1.162	1.146
RANGE 56.0 IN.	EL.(FT.)	0.005	0.075	0.154	0.230
DEPTH 0.251 FT.	VEL(FPS)	0.708	1.016	1.059	1.041
RANGE 58.0 IN.	EL.(FT.)	0.005	0.027	0.050	
DEPTH 0.084 FT.	VEL(FPS)	0.576	0.744	0.754	

***NOTE
1. RANGE 30 IS THE CENTERLINE OF THE CHANNEL.
2. MAXIMUM DEPTH OF FLOW IN THE CHANNEL.
3. DEPTH OF FLOW AT A GIVEN RANGE.
4. ELEVATION ZERO IS THE BOTTOM BOUNDARY AT A RANGE.

APPENDIX C: NOTATION

a	Curve-fitting coefficient
A	Flow cross-sectional area, ft^2
A_{CH}	Cross-sectional area of main channel, ft^2
A_F	Cross-sectional area of floodplain, ft^2
b	Curve-fitting coefficient
C	Chezy resistance coefficient
C_{eff}	Corrected Chezy resistance coefficient
D	Main channel bank-full depth, ft
f	Darcy resistance coefficient
g	Acceleration due to gravity
k_s	Nikuradse equivalent sand grain roughness, ft
n	Manning resistance coefficient
n_B	Manning resistance coefficient at bank-full stage
n_{CH}	Manning resistance coefficient for main channel
n_F	Manning resistance coefficient for floodplain
Q	Discharge, cfs
R	Hydraulic radius, ft
R_{CH}	Hydraulic radius of main channel, ft
R_e	Reynolds number
R_{eff}	Corrected hydraulic radius, ft
R_F	Hydraulic radius of floodplain, ft
S	Friction slope, ft/ft
$\bar{v}$	Average vertical velocity, fps
$\bar{V}$	Discharge/cross-sectional area, fps
W_{CH}	Width of main channel, ft
W_F	Width of floodplain, ft
Y	Flow depth, measured from bottom channel to water surface, ft
Y_{max}	Maximum flow depth, ft
α	Aspect ratio, ratio of floodplain width to channel width
ν	Kinematic viscosity (ft^2/sec)
ϕ	Correction factor

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